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Threatened, Endangered and Sensitive Plant Program

Summary of FY-91 Accomplishments

USDA Forest Service - Pacific Southwest Region

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USDA-FOREST SERVICE--PACIFIC SOUTHWEST REGION (CALIFORNIA)
THREATENED, ENDANGERED AND SENSITIVE PLANT PROGRAM
SUMMARY OF FY-91 ACCOMPLISHMENTS

The Region 5 FY-91 budget direction to the Forests stated:

> "Within those funds allocated for threatened, endangered, and sensitive species, strive to increase emphasis on sensitive plant management. Plant activities include developing an interim or final sensitive plant management guide, surveys, monitoring, biological evaluations, updating sensitive plant lists, and funding FTE's (full-time personnel) dedicated to the program including the hiring of seasonal botanists where appropriate. Implement cooperative and KV (Knutson-Vandenberg Act) habitat improvement projects for threatened, endangered, and sensitive plants. All Forests are encouraged to do at least one cost-share project for sensitive plants. Emphasis should also be given, where appropriate, for federally listed plant species and those candidate 1 species where FWS has an interest or is proceeding with a listing package".

> "Within the Appropriations bill, the Congress earmarked specific funds to be spent on T/E/S plants. The following allocation is your minimum expenditures forests need to account for in their TES plant report due in the Regional Office by October 15, 1991. The following dollars, however, are not intended to be the forests' total TES program.

> Angeles NF ($12,000), Cleveland NF ($12,000), Eldorado NF ($8,000), Inyo NF ($8,000), Klamath NF ($17,000), Lassen NF ($12,000), Los Padres NF ($13,000), Mendocino NF ($8,000), Modoc NF ($8,000), Plumas NF ($18,000), San Bernardino NF ($18,000), Sequoia NF ($8,000), Shasta-Trinity NF ($12,000), Sierra NF ($12,000), Six Rivers NF ($17,000), Stanislaus NF ($9,000), Tahoe NF ($12,000), LTBMU ($5,000). Total $209,000.

PROGRAM HIGHLIGHTS

During FY-91, Region 5 of the Forest Service (California) has continued to make significant advancement in meeting Congressional intent in strengthening the sensitive plant program. Highlights of FY 91 accomplishments include:

--Hired 64 seasonal botanists to do sensitive plant survey work in FY 91.

--A combination of funding sources from cooperators, other resource functions, and appropriated dollars for the threatened, endangered, and sensitive plant management comprise the R-5 program. During FY 91, the total threatened, endangered, sensitive plant and botany program was $ 1,317,743

--Increased program visability and advanced sensitive plant conservation with a 65 % increase in funding over FY 90 to do sensitive plant work.

--Survey work on the National Forests yielded 927 new occurrences involving 96 of the 302 sensitive plants identified on the R-5 list. Of this total, 487 new occurrences were recorded for 2 species. All field survey forms will be provided to the California Natural Diversity Data Base as outlined in our Memorandum Of Understanding with the Department of Fish & Game.

--Region 5 currently has 7 plant species federally listed under the Endangered Species Act of 1973 (as amended). The limestone endemics package comprising 5 plants were proposed in the Federal Register on November 19, 1991. In addition, 22 state endangered and two threatened species are listed under the California Endangered Species Act of 1984, and 28 species are listed as rare under the authority of the California Native Plant Protection Act.

--Volunteers also added significantly to the development of the sensitive plant program. This included a variety of groups including the Telephone Pioneers of America, Boy Scout troops, The Nature Conservancy, several chapters of the California Native Plant Society, Sierra Club, Sierra Pacific Industries, Laguna Mountain Volunteer Association, CDFG employees, several professors and graduate students from CSU Fresno, Humboldt State, and Chico State, local school groups, and individuals.

--Continued into our second year of signed Memorandum of Understanding with the California Field Office of The Nature Conservancy, The Rancho Santa Ana Botanic Garden, and the California Native Plant Society to work cooperatively toward native plant species habitat conservation issues.

--Received $22,000 in September 1990 from the State of California, Endangered Plant Program via "Endangered Species Tax Check-Off Funds". The work accomplished under this contract for these State-listed plants occurred in FY 91 field season.

--Received $10,000 in July 1991 from the U.S. Fish and Wildlfe Service to work on Arabis macdonaldiana and Clarkia lingulata.

USDA-FOREST SERVICE, PACIFIC SOUTHWEST REGION (CALIFORNIA) BOTANICAL PERSONNEL

UDSA-Forest Service
Pacific Southwest Region
Regional Office
Fisheries and Wildlife Mgmt.
630 Sansome Street
San Francisco, CA 94111

Regional Botanist: James R. Shevock: (415)-705-2691
Planning Biologist/Botanist: Anne F. Bradley: (415)-705-2882

ANGELES NATIONAL FOREST
701 N. Santa Anita Ave.
Arcadia, CA. 91006

Plant Coordinator: Bill Brown: (818)-574-1613
Forest Botanist/Ecologist: Mima Parra-Szijj: (818)-574-1613

CLEVELAND NATIONAL FOREST
10845 Rancho Bernardo Rd.
San Diego, CA. 92128

Plant Coordinator/Ecologist: Tom White: (619)-673-6180 ext. 3055
Forest Botanist: Kirsten Winter: (619)-673-6180 ext. 3056
Descanso District Botanist: Deveree Volarino: (619)-286-9882

ELDORADO NATIONAL FOREST
100 Forni Rd.
Placerville, CA. 95667

Forest Botanist: Mike Foster: (916)-622-5061

INYO NATIONAL FOREST
873 North Main St.
Bishop, CA. 93514

Plant Coordinator: Judie Tartaglia: (619)-873-5841
Forest Botanist: Brian Miller: (619)-873-5841

KLAMATH NATIONAL FOREST
1312 Fairlane Rd.
Yreka, CA. 96097

Forest Botanist: Barbara Williams: (916)-842-6131
Asst. Forest Botanist: Julie Knorr: (916)-842-6131
Salmon & Scott River RD's Zone Botanist: Marla Knight: (916)-467-5757
Ukonom & Happy Camp RD's Zone Botanist: Max Creasy (916)-627-3291

LAKE TAHOE BASIN MANAGEMENT UNIT
870 Emerald Bay Rd, Suite 1
South Lake Tahoe, CA. 96150

Plant Coordinator: Kathy Erwin: (916)-573-2600

LASSEN NATIONAL FOREST
55 So. Sacramento St.
Susanville, CA. 96130

Forest Botanist: Beth Corbin: (916)-257-2151

LOS PADRES NATIONAL FOREST
6144 Calle Real
Goleta, CA. 93117

Plant Coordinator/Ecologist: Mark Borchert: (805)-683-6711
Forest Botanist: Karen Danielson: (805)-683-6711

MENDOCINO NATIONAL FOREST
420 East Laurel St.
Willows, CA. 95988

Plant Coordinator: Dave Isle: (916)-451-3316

MODOC NATIONAL FOREST
441 N. Main St.
Alturas, CA. 96101

Plant Coordinator: Sydney Smith: (916)-233-5811

PLUMAS NATIONAL FOREST
P.O. Box 11500
Quincy, CA. 95971

Forest Botanist: Linnea Hanson: (916)-534-6500
Asst. Forest Botanist, Greenville RD: Joan Reynolds: (916)-284-7126
Milford District Botanist: Stacy Scott: (916)-253-2223

SAN BERNARDINO NATIONAL FOREST
1824 S. Commercenter Circle
San Bernardino, CA. 92408

Forest Botanist: Melody Lardner: (714)-383-5588
Asst. Forest Botanist, Big Bear District: Maile Neel (714)-866-3437

SEQUOIA NATIONAL FOREST
900 W. Grand Ave.
Porterville, CA. 93257

Plant Coordinator: Gordon Heebner: (209)-784-1500
Zone Range Conservationist/Botanist: Pam Brown: (805)-548-6503
Hot Springs District Botanist: Linda Tanner: (805)-548-6503

SHASTA-TRINITY NATIONAL FOREST
2400 Washington Ave.
Redding, CA. 96001

Forest Botanist: Julie Kierstead Nelson: (916)-246-5222

SIERRA NATIONAL FOREST
1600 Tollhouse Rd.
Clovis, CA. 93612

Plant Coordinator: John Lorenzana: (209)-487-5653
Forest Botanist: Joanna Clines: (209)-487-5155

SIX RIVERS NATIONAL FOREST
500 5th St.
Eureka, CA. 95501

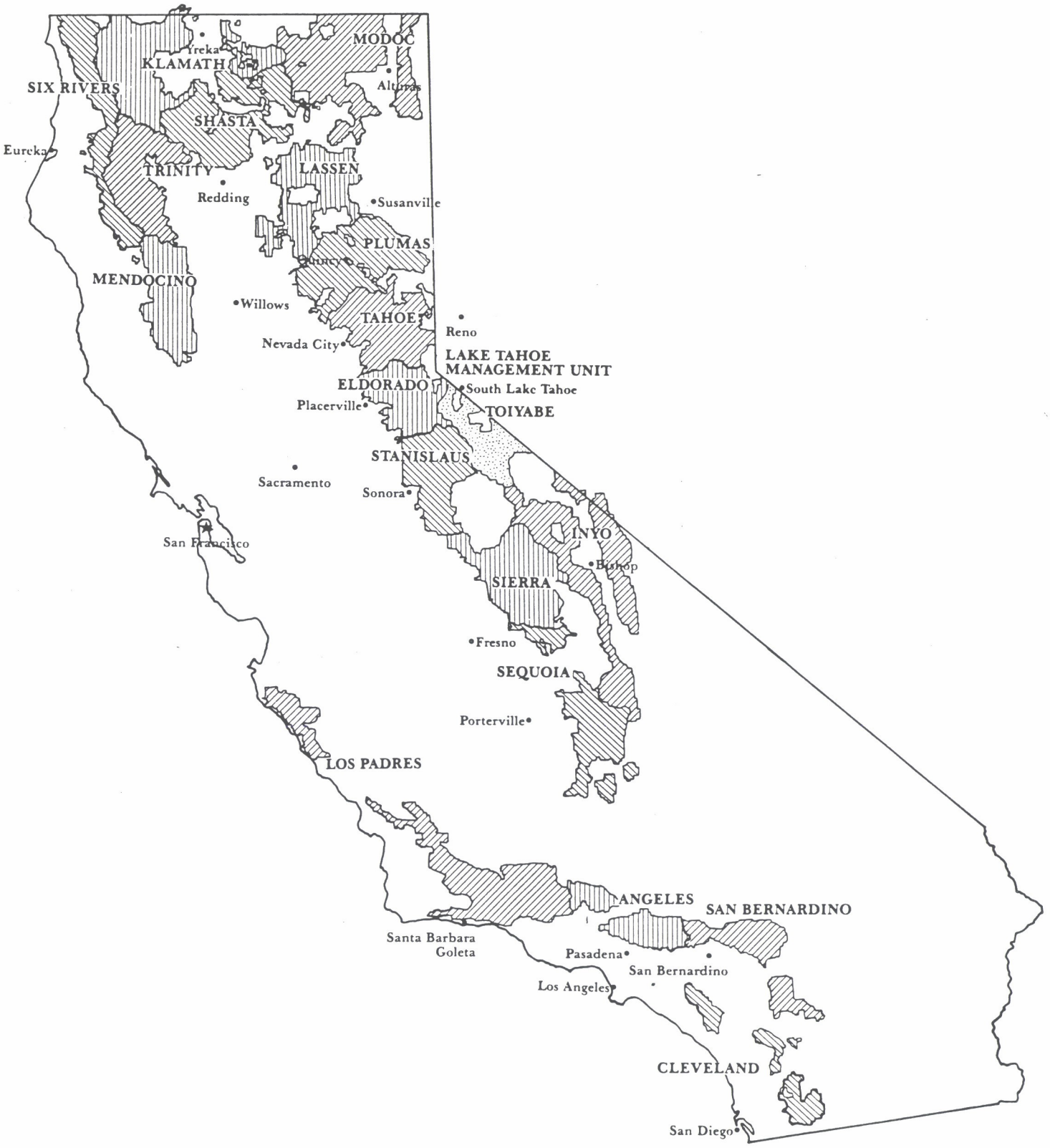
Plant Coordinator/Ecologist: Tom Jimerson: (707)-442-1721
Forest Botanist: Lisa Hoover: (707)-442-1721

STANISLAUS NATIONAL FOREST
19777 Greenley Rd.
Sonora, CA. 95370

Plant Coordinator: Tom Beck: (209)-532-3671
Groveland District Botanist: Jennie Haas: (209)-962-7825

TAHOE NATIONAL FOREST
631 Coyote St.
P.O. Box 6003
Nevada City, CA. 95959

Plant Cordinator: Donald Behrens: (916)-265-4531
Forest Botanist: Kathy Van Zuuk: (916)-265-4531


MODOC
Yreka
KLAMATH
Alturas
SIX RIVERS
SHASTA
Eureka
TRINITY
LASSEN
Redding
Susanville
PLUMAS
Quincy
MENDOCINO
Willows
TAHOE
Reno
Nevada City
LAKE TAHOE
MANAGEMENT UNIT
ELDORADO
South Lake Tahoe
Placerville
TOIYABE
STANISLAUS
Sacramento
Sonora
San Francisco
INYO
Bishop
SIERRA
Fresno
SEQUOIA
Porterville
LOS PADRES
ANGELES
SAN BERNARDINO
Santa Barbara
Goleta
Pasadena
San Bernardino
Los Angeles
CLEVELAND
San Diego

ANGELES NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

   No botanist or seasonals were hired in FY-91

2. **Did the Forest use volunteers to do plant work in FY 91?**

   No volunteers were used to do plant work in FY-91.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

   Under Memorandum of Agreement (MOA) with Rancho Santa Botanical Gardens, sensitive plant surveys were conducted at 23 project locations totaling 700 acres. In addition, approximately 290 acres were surveyed as part of species management guide preparation for Eriogonum microthecum and Streptanthus bernardinus by Rancho Santa Ana. Internally, 10 project level surveys totaling 10 acres were completed by the Forest Ecologist. Total acres surveyed equals 1000.

   No biological evaluations were written for sensitive plants in FY 91.

4. **Did the Forest develop an interim or complete a species management guide?**

   Species management guides were completed for Opuntia basilaris var. brachypoda and Lillium parryi . Species Management Guide preparation began for Eriogonum microthecum and Streptanthus bernardinus during FY-91, but will not be completed until January, 1992.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

   A survey of historical and potential habitat was conducted on Forest for Dodecahema leptoceras. This project was funded by the Department of Fish and Game as part of a much broader survey throughout the northern portion of this species range.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 36,000
Contributed funds & cost-share from non-Forest Service sources	$ 1,500
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$ 37,500

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

   Optuntia basilaris - Two new occurrences on Table Mountain, Valyermo Ranger District.

   Castilleja gleasonii - One new occurrence on Lightning Point, Tujunga Ranger District.

8. **Other activities**

   None.

CLEVELAND NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

Deveree Volgarino, a Biological Technician for the last 3 years on the Descanso District, is continuing in this position. Kirsten Winter continues as the Forest Botanist. Considerable botanical expertise and assistance was also provided by Tom White (Vegetation Management Specialist, S.O.), Maribeth Gustafson (District Ranger, Trabuco RD), and Fran Colwell (Resource Assistant, Trabuco RD).

2. **Did the Forest use volunteers to do plant work in FY 91?**

The Telephone Volunteers of America spent 40 hours working on willow planting on the Descanso Ranger District. The Laguna Mountain Volunteer Association spent about 80 hours working on willow planting and other projects. Joe Copp contributed botanical survey data on Blue Canyon. Moze Mossay contributed over 120 hours of time to assist with rare plant survey and monitoring.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

Fifty biological evaluations covering approximately 5000 acres were written in FY 91.

PROJECT TYPE	ACRES SURVEYED
TSI	350
SPECIAL USE PERMITS	350
PRESCRIBED BURNS	250
FISH AND WILDLIFE HABITAT IMPROVEMENT	70
T & E HABITAT IMPROVEMENT	40
TRAIL CONSTRUCTION	40
CAMPGROUND CONSTRUCTION	100
LAND EXCHANGE	300
CIVILIAN CONSERVATION CORPS SITE	200
GRAZING ALLOTMENTS	1500
SENSITIVE PLANT SURVEY	2000

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 91 budget direction?**

Environmental analysis of a habitat management guide for four montane meadow species was written; guidelines generated will be incorporated into the Forest Plan. Species management guides for San Diego Thornmint and Tecate Cypress were prepared.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

Five cost-share projects were completed in FY 91. Four of these involved work with Forest Sensitive plant species; one focused on restoration of a sensitive riparian area.

Sensitive plant cost-shares included two agreements with local botanists, Fred Sproul and Don Betts, who conducted sensitive plant surveys. One cost-share was with a graduate student, Linda Allen, who is studying two species of Forest Sensitive Monardellas for her Master's thesis project. One cost-share was with Rancho Santa Ana Botanic Garden to conduct surveys for Munz's Onion, a Forest Sensitive Species. Total Forest Service contribution to these agreements, part of which was Calif. Dept of Fish and Game funding, was $6,000. Total challenger contributions were $20,000.

One cost-share was completed with the Izaak Walton League and with volunteers who worked on planting willows and fencing sensitive riparian areas. Total Forest Service contribution to this cost-share was $13,000; challenger contributions were $39,000 including materials, labor, and planning.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 39,000
Contributed funds & cost-share from non-Forest Service sources	$ 50,000
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$ 89,000

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

PLANT SPECIES	# NEW SITES
Allium munzii	2
Acanthomintha ilicifolia	4
Astragalus deanei	2
Astragalus oocarpus	1
Calamagrostis densa	4
Delphinium hesperium ssp, cuyamacae	1
Echinocereus engelmannii var. munzii	4
Grindelia hallii	4
Horkelia truncata	1
Limnanthes gracilis ssp.parishii	1
Machaeranthera asteroides var. lagunensis	1
Nolina cismontana	2
Phacelia suaveolens ssp. keckii	1
Thermopsis macrophylla var. semota	1

29 new sensitive plant locations were discovered in FY 91.

8. Other activities

LAND ACQUISITIONS

The Cleveland National Forest began acquiring lands which support Tecate Cypress on Guatay Mountain. Tecate Cypress is a Forest Sensitive Species. Completion of this land acquisition will place this entire stand on Forest lands; this is one of only 3 stands of this cypress within the United States. In order to initiate this acquisition, the Forest obtained Congressional approval for a change in the Forest Boundary. Tom White, Vegetation Management Specialist, and Sue Murphy, Lands Officer, have coordinated this project.

CALIFORNIA DEPT. OF FISH AND GAME ENDANGERED SPECIES FUNDING

With funding from the California Dept. of Fish and Game, the Forest Botanist coordinated surveys for San Diego Thorn-mint (Acanthomintha ilicifolia), Slender-horned Spineflower (Dodecahema leptoceras), and Munz's Onion (Allium munzii). Surveys focused on known and potential habitat for these species; over 1500 acres were searched, resulting in the location of four new populations of San Diego Thornmint and two new populations of Munz's Onion. The known populations of Slender-horned Spineflower were monitored and several areas of potential habitat were searched. California Department of Fish and Game funding was also used to fund the Forest Botanist while writing a species management guide for Tecate Cypress (Cupressus forbesii).

DISTRICT BOTANIST, DESCANSO RD

Deveree Volgarino, Biological Technician (Plants) on the Descanso District, led a botanical field trip in the Laguna Mountain Recreation Area. She discussed flora of the meadow and management practices.

Coordinated construction of an exclosure to protect a large population of Cuyamaca meadowfoam (Limnanthes gracilis var. parishii) from impacts due to recreational use of its habitat. Responded to extensive inquiries and controversy regarding closure of this area to dispersed camping.

Planned and oversaw construction of two grazing exclosures to monitor effects of grazing on San Bernardino Bluegrass, a Forest Sensitive Species.

Completed two courses in botany at San Diego State University to qualify for conversion to the professional Botanist series.

Organized and oversaw collection of native plant seeds by the Laguna Mountain Volunteer Association. Seed collected will be used in revegetation projects on the district.

Monitored clean-up of an oil spill on Interstate 8.

DESCANSO DISTRICT BOTANIST (continued)

Coordinated a cost-share project with the Izaak Walton League which involved over 100 volunteers planting 6000 willow cuttings in Pine Creek, including developing and circulating press announcements, recruiting local volunteers, and arranging for transportation of volunteers and materials.

Developed interpretive signs for road closures and other areas being rehabilitated.

With Forest Botanist, developed plans for an interpretive trail and signs to educate campground users about sensitive plants in the campground.

Participated as a member of the ID team for EAs on the Pine Creek Trailhead and the Habitat Management Guide for Montane Meadows.

PALOMAR RANGER DISTRICT

Ron Woychak, District Wildlife Biologist, wrote several biological evaluations for sensitive plants.

Roger Wong, District Resource Officer, provided field assistance to the Forest Botanist on several field trips and coordinated rebuilding of a fence to protect a federally-listed plant species, the Slender-horned Spineflower.

TRABUCO RANGER DISTRICT

Maribeth Gustafson, District Ranger, provided valuable advice and support to the Sensitive Plant Program. She also located a new population of Ramona Horkelia on the Trabuco District.

Fran Colwell, Resource Assistant, issued collecting permits, kept District files and Atlas current, and implemented closure of an area to off-road vehicles to prevent damage to native vegetation.

FOREST BOTANIST

The Forest Botanist, Kirsten Winter, led two California Native Plant Society trips on the Cleveland National Forest. The field trips emphasized sensitive plants and their habitat. Kirsten also led a field trip for the Laguna Mountain Volunteer Association.

The Forest Sensitive plant species Atlas and Database were updated. Copies of sensitive plant files were provided to the Palomar District.

With Descanso District Botanist, coordinated and implemented monitoring of Cuyamaca Meadowfoam on the Palomar and Descanso Districts.

Completed a course in Restoration Ecology at San Diego State University.

FOREST BOTANIST (continued)

Attended California Native Plant Society board meetings, chapter meetings, and field trips. Attended Southern California Botanists annual meeting on Managment of Endangered Habitats. Attended organizational meeting for a California chapter of the Society for Ecological Restoration.

Wrote a successful proposal to obtain state OHV funds for sensitive plant protection. Funds will be used to construct fencing to protect a Forest Sensitive species from vehicular activity.

With Roger Wong, presented a talk on careers in the Forest Service to a San Diego State University class. Served as a judge for a city-wide high school science fair.

Served as ID Team leader and wrote EA for Habitat Management Guide for Montane Meadows. Participated as ID team member on four other EAs. Updated the biological portion of the EIS for the Civilian Conservation Corps Center.

ELDORADO NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

   Forest Botanist (J.Reynolds) transferred, new Forest Botanist (M.Foster) was hired; a harvest inspector (Mark Williams) continued to work full time as the de facto District Botanist on Georgetown RD; a detailer (Patti Lesky) was hired on the Amador RD for 4 months; a temporary GS-404-05 was hired on the Pacific RD; a Coop Student was hired on the Placerville RD in addition to three temporary GS-430-05 botanists.

2. **Did the Forest use volunteers to do plant work in FY 91?**

   Yes: 4 volunteers contributed 200 hours on the Pacific District; at the Forest level, Ledyard Stebbins contributed 2 days and Don Smith contributed 4 days.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

Type of Project	Acres	Biological Evaluations written
Salvage/Green T.S.	20,936	7 (Salvage BE's written in '90)
Silviculture/Herbicides	1,932	0 (BE's written in '90)
Range (AMP's)	200	0
Recreation (e.g. Trails, Enduros, Ski area development, etc.)	731	16
Road Construction		1
Miscellany (e.g. Special uses, utilities, etc.)	145	6

4. **Did the Forest develop an interim or complete a species management guide?**

   No.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

   A. Eldorado cooperated with Tahoe NF and LTBMU to fund Cost Share with CNPS to study range, distribution and baseline ecological characteristics of Lewisa pygmaea ssp. longipetala.

   B. Boundary Burn project was monitored for effects of prescribed fire on Calochortus clavatus var. avius. Cooperator was Cal. Dept. Fish and Game (Hill Bill).

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 110,000
Contributed funds & cost-share from non-Forest Service sources	$ 2,000
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$ 112,000

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

Species	No. of Occurrences Discovered
Calochortus clavatus var. avius	19
Lewisia serrata	1
Navarretia prolifera ssp. lutea	4
Phacelia stebbinsii	3
Silene invisa	18

8. Other activities

a. Developed color brochure on plants of Round Top Botanical Special Interest Area.
b. Training was provided on each district to non-botany personnel on the identification and ecology of the Forest's sensitive plants.
c. Provided training in sensitive plant identification and habitat characteristics to California Dept. of Fire and Forestry personnel, private lands foresters, and consulting botanists as an aid in finding off-forest occurrences and mitigating off-forest activities.
d. Provided interpretive talks to Eldorado National Forest Interpretive Association, a Girl Scouts Ecocamp, local schoolteachers, and other forest visitors. Provided information on sensitive plants at an Earth Day Fair.
e. Provided vegetation expertise to three meadow rehabilitation projects, two of which included involvement with outside partners such as the Jeepherders.
f. Continued several monitoring projects to determine the effects of timber harvest activities and prescribed fire on sensitive plants. Initiated one monitoring project to test effects of herbicides on Calochortus.
g. Developed vascular plant list for Eldorado National Forest (contains 900 plus taxa, almost 1/10 of the taxa known to occur in California).

INYO NF **********

1. Did the Forest hire a botanist or seasonal(s) in FY 91?

The Inyo National Forest hired one seasonal under the Bio-Tech series to work as a seasonal botanist under the acting forest botanist. In addition each zone employed a seasonal Bio Tech who had partial responsibilities for sensitive plants. The North Zone spent 6 pp in sensitive plant work.

2. Did the Forest use volunteers to do plant work in FY 91?

The Forest used 27 volunteers that completed 1127 hours of sensitive plant work. This consisted of 26 unpaid volunteers working 807 hours and one CCC enrollee who worked 320 hours.

3. Amount and/or types of projects/acres surveyed for and numbers of BE's written for sensitive plants in FY 91.

SUPPORT WORK
AMP input - support was give for the revision of three AMP's
EA input - Eight EA's were reviewed for sensitive plant impacts.
OHV plan - The Forest OHV plan was reviewed for potential sensitive plant concerns

PERMITS ISSUED
Three forest wide plant collecting permits were issued from the SO.
One permit was initiated to study the effects of elevation on two species of Phacelia.

SURVEYS

HABR Survey	410 ac.	PECR survey	2 ac
OXDES Survey	390 ac	ASMO survey	150 ac
HOHI Survey	120 ac	DEEU survey	340 ac
STOL Survey	15 ac	PHNA Survey	95 ac
CAEX Survey	10 ac	PHMO survey	30 ac
LUDU Survey	12 ac	ASLEK & ASSU Sur.	55 ac
LUSU Survey	15 ac		

Total acres surveyed = 1649 ac.

MONITORING

ABAL Monitoring	30 ac
HABR, OXDES Monit.	7 ac

Total Monitoring Acres 37 ac.

CA's, EA's, & BIOLOGICAL EVALUATIONS
No Cat Ex, EA's, or BE's were written by people with responsibilities in the Botanical area. Five Cat. Ex. and seven EA's were reviewed as support for other projects.

4. Did the Forest develop an interim or complete a species management guide?

The Forest completed three (3) interim species management guides and one species management guide. The three interim guides included one for Hackelia brevicula, Horkelia hispidula, and Oxytropis deflexa var. sericea. The species management guide for Abronia alpina was submitted to the Mt. Whitney District Ranger and Forest Supervisor for final approval.

5. The Forest completed several cost share projects as follows:

a. Abronia fencing project - 2.2 miles of fencing were built to protect this species in Ramshaw Meadows. This cost-share project included funds from CELP, CA Tax Check-off, and Wildlife conservation Board.

b. Five field survey trips were conducted in cooperation with the Bristlecone Chapter of CNPS. Field surveys were completed for various populations of Phacelia nashiana, P. monoensis, Dedeckera eurekensis, Calochortus excavatus, Streptanthus oliganthus, and Eriogonum beatleyae.

c. Monitoring of HABR & OXDES were conducted with the help of a CCC enrollee.

These projects completed the survey of 490 acres, monitoring of two seneitive plant species, and the construction of 2.2 miles of fencing.

6. $$ Spent on TES plant program during FY 91 by the following funding sources:

Appropriated funds (all FS sources & cost-share)	$53,267
Contributed funds & cost-share from non FS sources	$19,300
KV funds	$ -0-
Total	72,567

7. Name of sensitive plants and number of new occurrences discovered in FY 91.

Species	New Occurrences
Dedeckera eurekensis	6
Phacelia monoensis	2
Phacelia nashiana	1
Astragalus monoensis	1
Hakelia brevicula	1 & 5 (sub populations)
Horkelia hispidula	1
Oxytropis deflexa var. sericea	0 & 10 (sub populations)
Arabis pinzlae	1
Astragalus lentiginousus var kernensis	9
Astragalus subvestitus	3

Total New Population Occurences	25
Total New Sub Population Occurences	15

8. Other activities:

Forest personnel involved in the sensitive plant program participated in many diverse projects through out the 1991 fiscal year. A summary of these projects are as follows:

1. The acting forest botanist updated the forest grazing allotment map and completed a list, by allotment, of all sensitive, watch list #1, and watch list #2 species. This is an important planning tool for revision of the many grazing allotment AMP's being undertaken in the next several years.

2. A strategy was developed for monitoring the life history of ASMO at Smokey Bear Flats in conjunction with CAL TRANS.

3. We carried out the second year of monitoring for Oxytropis and Hackelia in the Cottonwood Basin.

4. A contract was let for development of a species monitoring guide for Abronia alpina.

5. Work was done on the Forest sensitive plant atlas as time allowed. We were able to map approximately 2/3 of the Forest populations.

6. Development of a sensitive plant field ID booklet was undertaken. Photos and drawings of most species have been gathered. This will be an on going project as time allows.

7. Conducted a one day field training session for the Forest's North Zone Biologists.

8. The Forest purchased four new tall herbarium cabinets to replace five smaller old ones. Two were purchased with dollars donated from other departments.

9. Maintained existing exclosures for Abronia, Hackelia, and Oxytropis.

KLAMATH NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

   1 temporary Botanist, GS-430-5: Mark Steiger. Goosenest RD, 16 PP.

2. **Did the Forest use volunteers to do plant work in FY 91?**

   1) 2 mos. @ equivalent GS-5 cost to gov't = $2800 value.
      Edge effect study on Ukonom RD.
   2) 8 days @ equivalent GS-5 cost to gov't = $ 560 value.
      Habitat improvement project.
   Total = 2 1/2 months of volunteer work valued at $3360.
   See below under "Activities" for expanded descriptions of work done.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

   14 Timber sales: project area acres evaluated: 15,716
   actual acres field surveyed: 4,310
   Sale types: green sales
   sanitation/salvage sales
   commercial thinning sales
   Coordinated Resources Inventory: 1,200 acres field surveyed
   District wide botanical inventory: 3,000 acres field surveyed
   Butte Valley National Grassland: 1,000 acres field surveyed
   12 Biological Evaluations written in FY91.

4. **Did the Forest develop an interim or complete a species management guide?**

   No. The Forest has declared the Land Management Plan #1 priority and that is where the emphasis in planning and long term management has been. The Forest Plan will include strong standards and guidelines for protection and management of sensitive species, and direction to complete necessary Species Management Guides.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

   The Forest completed a second year of a cooperative sensitive plant habitat improvement project with California Native Plant Society members using appropriated funds, although the project was not officially conducted using a CC-S agreement. The project entailed the removal of non-native weeds from 10 acres of Calochortus persistens habitat. There has been an apparent decrease in the numbers of this State listed Rare plant due to increasing invasion by an aggressive non-native weed Isatis tinctoria. Control and test plots were established to measure the effeciveness of removal of this weed by hand pulling of its biennial root. Manpower for this project was composed of Forest Service Botanists, seasonal Forest Service crews, and local CNPS volunteers.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

FOREST SENSITIVE PLANT PROGRAM:		
Appropriated funds (all Forest Service sources & cost-share)		
Timber sale support; botanical surveys; biodiversity analyses for timber sales.		$ 22,500
Forest planning and program management		$ 51,056
Cypripedium fasciculatum species viability investigation		$ 4,944
Calochortus persistens habitat improvement project		$ 2,000
Contributed funds & cost-share from non-Forest Service sources		$ -0-
Contributed labor, valued at current professional rates		$ 3,360
Timber Reciepts funds		
Timber sale support; botanical surveys.		$ 17,000
	TOTAL	$ 100,860
FOREST BOTANY PROGRAM (non-TES):		
Appropriated funds	-Riparian Vegetation Inventory Report	$ 2,760
	-Air Quality lichen monitoring	$ 2,950
	-District Ecosystem Classification & Coordinated Resources Inventory	$ 12,000
	-Butte Valley National Grassland Inventory and Checklist	$ 700
Knutson-Vandenberg funds	-Post-fire riparian inventory & reveg.	$ 800
	TOTAL	$ 19,210
	Total Forest Botany Program	$ 120,070

7. **Name of Sensitive plants and number of new occurrences discovered in FY 91**

Lewisia cotyledon var. howellii	2
Lomatium peckianum	4
Trillium ovatum ssp. oettingeri	4
Silene marmorensis	2

Species Managed under Forest Species Management Guidelines

Cypripedium fasciculatum	6
Cypripedium montanum	6
Lilium wigginsii	6

8. **Activities**

FOREST PLANNING -

* Forest Botanist is a member of the Forest ID Team developing the KNF Land Management Plan. Coordinating info and writing sections of the documents on Biological diversity, Sensitive plants, Research Natural Areas, Special Interest Areas including Botanical Areas. Member of alternative development team, monitoring plan development group, riparian management working group and Forest biodiversity coordinator.

* District botanists provided input to Forest LMP effort: assistance in Botanical Area, and Research Natural Area write-ups, development of species lists for those areas and work on forest monitoring plan for biodiversity.

* Coordinated a second 2-day workshop of KNF planning team members and ecologists from other NFs, PSW and PNW research, and universities to develop analysis process for biological diversity in forest plan process.

* Reviewed potential RNA candidate area with PSW representatives on regional RNA committee.

DEVELOPING FUNDING - We are working toward building a strong and diverse budget for the botany program on the Klamath. A great deal of work was accomplished by the botanists this year using funding sources other than TES/wildlife or timber support money:

* District Botanist conducted botanical surveys in the new Butte Valley National Grasslands and produced a species checklist to aid in the Coordinated Resources Inventory that is being conducted in the Grasslands. (Work accomplished with Range funding.)

*District Botanist conducted a district wide botanical inventory to compile species checklists, habitat descriptions, and type mapping in order to develop baseline data for future landscape analysis. (Work accomplished with range funding. Additional funding for inventories in FY-92 is anticipated.)

* Assistant Forest Botanist worked with District Range/Watershed/Fisheries staff to complete a multi-resource inventory report of 2 landscape level riparian areas. (Work done with fisheries funding. Project may result in additional funding in the future.)

* Botany program has taken on responsibility for establishing air quality lichen monitoring plots on the Forest in the Marble Mountain Wilderness. Additional field work was done this FY to collect high elevation lichen specimens for identification and to locate areas suitable for establishing additional plots. (Work done with air quality funding. Project has resulted in additional funding for FY 92.)

* District Botanist/Ecologist collected data to aid in classification of plant associations in a landscape level project analysis as part of a Coordinated Resources Inventory.

* District Botanist was responsible for mapping vegetation types and species distribution in a revegetation project. (Work done with watershed funding. Project has resulted in additional funding for the future.)

* District botanist worked with soil scientist to map vegetation as part of an initial Forest effort at Coordinated Resource Inventory. (Work done with soils funding. Future funding from this source is anticipated.)

VOLUNTEERS - Still additional work was completed by the excellent volunteers we were lucky enough to have:

* District volunteer spent two months studying the edge effect on different species composition along a gradient from interior old growth to 20 year old plantations.

* Local California Native Plant Society members donated labor to assist in the weeding of an introduced mustard from the habitat of Calochortus persistens, a state listed Rare plant.

* CNPS and Native Plant Society of Oregon volunteers assisted Klamath and Rogue River NF botanists with a re-inventory of the endemic population of Lupinus aridus ssp ashlandensis on Mt Ashland.

TRAINING, WORKSHOP AND CONFERENCE PARTICIPATION
* Continuing education program; Managing Forest Structure and Composition short course attended by 2 botanists

* Presented paper on Klamath's biodiversity indicators at North American Wildlife and Natural Resources Conference, Alberta, Canada.

* 3 KNF botanists presented papers at the Biodiversity of NW Calif Symposium, Santa Rosa, CA

* 2 botanists attended mushroom management workshop Corvallis, Oregon

* R5 RNA workshop attendance

* Presented talks on biodiversity at R5 Fish and Wildlife workshop

* Presented biodiversity planning poster at national SAF conference

STRENGTHENED PARTNERSHIPS - both internal and external.

* Participation in "N.Bot", northern Forest botanists informal working meetings.

* Participation in INACC Klamath regional meetings

* Forest conducted field review of proposed RNA Area with County botanist.

* District Botanists conducted a two day training session in plant identification for district Silviculture and Timber personnel.

* Botanists participating in development of Memorandum of Understanding with PSW, Penn State University, and UC Davis for biodiversity research and management.

* Worked with UCLA researcher studying distribution of Abies lasiocarpa.

* Environmental Education presentations/field trips: Kidder Creek Outdoor School.

OTHER ACTIVITIES-

* A Forest wide investigation of the viability of Cypripedium fasciculatum populations on the Forest was conducted. A report from the Oregon Natural Heritage Division had indicated that the Oregon and Washington populations of CYFA were not reproducing. As a result, we revisited 60% of our known populations to gather data on numbers of individuals, age class percentages and evidence of reproduction, habitat information, and management impacts. Preliminary results show that the populations on the Klamath NF are reproducing well.

* District botanist acted as consultant to native seed collection contract with USFWS; provided input into revegetation efforts on harsh sites.

* District botanist continued post-87 fire riparian recovery monitoring.

* District botanist now has collateral duty as Forest Recycling Program Manager

* Worked on GIS information needs assessment process for Sensitive plant management, biodiversity and ecosystems management.

* Botanist represented the Forest at Regional ecologists field review session.

LASSEN NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

Two botany seasonals (Kim Earll and Steve Klukkert) were hired for the 1991 field season. Continuing permanent botany personnel are the full time forest botanist (Beth Corbin) and three district sensitive plant coordinators with collateral duty (Chuck Rowe, Dan Merritt, and Wayne Bienkowski).

2. **Did the Forest use volunteers to do plant work in FY 91?**

Three volunteers were used in the botany program in FY 91. Reggie Kramer assisted in lichen monitoring, Joy Meagher is working with the Forest to develop an illustrated brochure for the Willow Lake Bog Botanical Special Interest Area, and Dr. Vern Oswald continues to assist the Forest in plant identification, location of sensitive and special interest species, and the Willow Lake project.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

Project	Project Acres	Person-days surveyed
Almanor Ranger District:		
Brown Ravine Biomass	430	2
Discovery Timber Sale	10,000	2
Humbug Progeny Test Site	20	1
Lost Lake Timber Sale	3,200	6
Mudhole Timber Sale	5,500	10
West Dusty Timber Sale	10,000	18
Eagle Lake Ranger District:		
Ash Creek Land Exchange	1,880	6
Eagle Lake Office Site	54	1
Grays Management Area Timber Sale	20,000	8
Harvey Management Area Timber Sale	28,000	12
Hog Management Area Timber Sale	18,650	8
Keeler Land Exchange	680	3
Spaulding Tract Land Exchange	200	1

Hat Creek Ranger District:

Balderdash Timber Sale	8,000		6
Battlebash Timber Sale	1,200		4
Brokeoff Meadow Land Exchange	40		2
Cash Road Special Use Permit	10		1
Corner Compartment Timber Sale	7,000		5
Coyote Compartment Timber Sale	4,000		4
Igloo Timber Sale	170		2
Latour Timber Sale	3,200		4
Lost Creek Mgmt Area Timber Sale	25,015		8
Lost Fire Vegetation Management	5,000		3
SOS Well	10		1
	---		---
Total Project Acres:	152,250	Total Days:	118

Project sensitive plant survey documentation forms were completed for each of the above projects.

Sensitive plants were found in six of those projects, and biological evaluations are being or have been prepared for each of them.

In addition to project surveys, a few additional areas of particularly interesting habitat for sensitive plant species were surveyed.

4. **Did the Forest develop an interim or complete a species management guide?**

A draft species management guide for Mimulus pygmaeus, Egg Lake monkeyflower, was developed in FY 91.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

No.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share) SO	$ 24,000
Seasonals	$ 12,000
Almanor RD	$ 1,000
Hat Creek RD	$ 1,000
Eagle Lake RD	$ 1,000
Contributed funds & cost-share from non-Forest Service sources	$ 0
Knutson-Vandenberg funds	$ 0
Total Forest Plant Program	$ 39,000

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 91

Species	Almanor RD	Eagle Lake RD	Hat Creek RD
Collomia debilis var. larsenii			1
Eryngium mathiasiae			2
Gratiola heterosepala			3
Mimulus pygmaeus		11	1
Penstemon personatus	1		
Silene invisa	3		

In addition, two rare species that probably will be added to the R-5 sensitive list were discovered: Tuctoria greenii and Silene occidentalis ssp longistipitata.

8. Other activities

The following sensitive plant occurrences were monitored in FY 91: (Not counting new occurrences.)

Species:	# of occurrences	Type of monitoring
Arabis constancei	1	visual
Asplenium septentrionale	2	visual
Calochortus longibarbatus	1	numerical
Eryngium mathiasiae	3	visual
Gratiola heterosepala	2	visual
Lupinus dalesae	3	visual
Mimulus pygmaeus	6	4 numerical, 2 visual
Orcuttia tenuis	4	3 numerical, 1 visual
Penstemon personatus	1	visual
Scheuchzeria palustris var. americana	2	visual
Sedum albomarginatum	1	visual
Senecio eurycephalus var. lewisrosei	2	visual

Additions were made to the sensitive plant and Forest wildflower slide collections.

Additional collections were made of specimens for the Forest herbarium.

The Forest botanist serves as Forest biodiversity coordinator and has been involved in LMP revision. Extensive editing was done in vegetative diversity, special areas (RNA's and SIA's), air quality, and sensitive plant sections of the LMP. Draft guidelines for old growth retention area selection and management have been developed, based on draft ecosystem classification old growth definitions.

The Forest botanist serves as RNA and SIA coordinator and shares information on these special areas between the Forest and the RO, PSW, and report contractors.

Seeds of native grasses and shrubs were collected for revegetation projects. Shrub seeds were sent to the Chico Tree Improvement Nursery for planting, and the plants will be placed in a powerline right-of-way after construction.

Lichen plots were established in two class I wilderness areas (Thousand Lakes and Caribou) to monitor air quality. Voucher specimens of lichen were collected and duplicates deposited (and identifications verified) with the lichenologist at the Santa Barbara Museum of Natural History.

Presentations on sensitive plants and Forest wildflowers were made to local garden clubs and a high school class.

A partnership with the BLM was continued, as BLM and Forest Service botanists jointly monitored sensitive and special interest species.

Information has been gathered for revisions to the Forest sensitive and special interest plant species lists.

An illustrated brochure for the Willow Lake Bog Botanical Special Interest Area is being developed, with assistance from a botanical artist from a local garden club and a retired university professor.

Meetings were held with private land managers to discuss sensitive species management recommendations.

A sensitive plant survey atlas was developed to consolidate maps of surveys completed.

Sensitive plant location atlases for the Supervisors Office and Ranger Districts were updated with information from the 1991 field season.

A form for riparian area condition monitoring was developed with Forest fisheries, hydrology, and range personnel. Field assistance was provided in riparian area monitoring, as well as range condition monitoring.

The Forest botanist continued to provide information to the public and researchers on plant species of the Forest.

Partnerships were utilized with BLM botanists to monitor Sensitive and Special Interest Species that the Lassen Forest has in common with the Susanville and Redding Districts of BLM.

Information has been gathered for revisions to the Forest Sensitive and Special Interest Species lists.

Field surveys and monitoring of Mimulus pygmaeus were completed using supplemental FY 89 timber receipts to gather information for a species management guide. About 3200 acres were surveyed. Field surveys resulted in 5 new occurrences, 2 of which are quite extensive; previously only 7 occurrences were known for California, some of which have not been re-located in recent years.

LAKE TAHOE BASIN MANAGMENT UNIT **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

   Yes, the LTBMU hired 2 temporary biological technicians that performed various tasks in the wildlife department. Since the sensitive plant program is administered by wildlife here, they also performed sensitive plant surveys and inventories and wrote biological evaluations.

2. **Did the Forest use volunteers to do plant work in FY 91?**

   No volunteers were used to do plant work this year.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

   Several project sites were surveyed for sensitive plant species in FY 91. These included numerous support services for other resources on the unit.

   Burton-Santini Land Acquisitions.....10 acres
   Timber/Salvage Sales.....28
   Special Use Permits..... 6
   - Utility construction projects
   - Ski area lift construction

   Recreation.....160
   - Tahoe Rim Trail construction

   In addition to the project clearances, we continued to monitor 7 acres of planted populations of Rorippa subumbellata (ROSU 2) and surveyed 14 acres of new habitat, discovering 8 new populations of ROSU-2.

   Biological evaluations for sensitive plants were written for 8 projects.

4. **Did the Forest develop an interim or complete a species management guide?**

   No interim or complete species management guides were developed this year. Editing and finalization of the interim guides developed in FY 90 is still in progress.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

   A cost-share project was developed between the LTBMU, the Tahoe and Eldorado forests and the California Native Plant Society. The project is entitled "Ecological Survey and Status Report of Lewisia pygmaea ssp. logipetala". It should be completed by June 1992.

   Total expenditures of $6,000 are anticipated. All three national forest units have contributed $1,000 each and the CNPS has contributed $3,000.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 4,901
Contributed funds & cost-share from non-Forest Service sources	$
Knutson-Vandenberg funds	$
Total Forest Plant Program	$ 4,901

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

Rorippa subumbellata.....8 new occurences

8. **Other activities**

Three planted populations of Rorippa subumbellata were monitored for the third year in FY 91. The overall condition of the enclosed, planted populations has declined, while the surrounding natural population has improved. Monitoring will continue for two more years.

Plans for establishing another ROSU-2 population in FY 92 are in progress. A watershed restoration project at Burke Creek plans to reroute an altered stream course back into its natural channel. This could have a negative impact on the existing ROSU-2 population at the site. Possible mitigation could involve the planting of additional plants at the project site.

The LTBMU collaborated with the Tahoe, El Dorado and Plumas National forests in the decision to delist Silene invisa. Although our part was small, we supported the decision by the botanist on the Tahoe to change the plant's status from la to 4. That action is still in progress.

LOS PADRES NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

No. However, the Forest has completed the outreach for a full-time botanist and has advertised for the position in the last quarter of the FY.

2. **Did the Forest use volunteers to do plant work in FY 91?**

No

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

20 projects were surveyed.

4. **Did the Forest develop an interim or complete a species management guide?**

No

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

No

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 3,000
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$ 3,000

$10,000 are being carried over from FY 91 which were programmed for hiring of the full-time botanist position.

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

No new occurrences were discovered this year.

8. **Other activities.**

Second year follow-up of Caulanthus californicus experimental populations on the Forest. Soil properties study at the Chlorogalum purpureum reductum site and establishment of a long-term monitoring program for the species. Assisted in the data analysis of SBNF Pebble Plains data. Began floras for two botanical areas on the Monterey RD.

MENDOCINO NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

   No.

2. **Did the Forest use volunteers to do plant work in FY 91?**

   No.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

Number	Type Project	Acres Surveyed	Biological Eval./Input
2	Off Road Vehicle Event Route Evaluation	4	2
2	Burn Project	50	2
1	Conservation Camp waterline, helipad, sprayfield & driftfence	5	2
1	Campground Expansion	35	2
1	Vegetation Type Conversion	40	1
1	Watershed Improvement	10	1
1	Road/Trail Revegetation	2	0
10	Timber Sales	244	10
	TOTALS	390	20

4. **Did the Forest develop an interim or complete a species management guide?**

   No.

5. **Did the Forest complete a challenge cost-share project in FY 91?**

   Yes. The East Bay Chapter of the California Native Plant Society sponsored a "Habitat Management Study of Rare Plants and Communities associated with Serpentine Soil Habitats in the Mendocino National Forest" by Niall F. McCarten and Chris Rogers. This study began in FY 90 and was completed in FY 91.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$16.680.37
Contributed funds & cost-share from non-Forest Service sources	$ 3,710.00
Knutson-Vandenberg funds	$ 1,000.00
Total Forest Plant Program	$21,390.37

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

   Antirrhinum subcordatum - 1
   Astragalus clevelandii - 1
   Calycadenia truncata subsp. microcephala - 1
   Eriastrum brandegeae - 1 (large expansion of existing known population)
   Hesperolinon tehamense - 5 known locations brought to FS attention in FY 91

8. Other activities

This year Dr. Dale W. McNeal, Professor & Curator at University of the Pacific, and I visited the Forest site of an unusual Allium population I had found in 1990. From the limited sample I supplied Dr. McNeal in 1990, he hypothesized that we had either a new species or a range extension. From fresh specimens we collected this year, Dr. McNeal determined that it was a "nice range extension" of Allium obtusum var. obtusum, which was previously only known from the Sierra Nevada and one Siskiyou location.

Dr. Robert L. Carr, Director at Turnbull Laboratory for Ecological Studies and Professor of Biology at Eastern Washington University, confirmed my ID for a Calycadenia truncata subsp. microcephala specimen I had collected on a timber sale. Dr. Carr determined that it was a form of what he considers to be "microcephala" and known from only one other location, which is also on the Mendocino NF. He plans to visit the population in 1992 to study it further.

Craig Thomsen of UCD Agronomy Department showed me several hundred more plants that extend the distribution of the Cook Springs Brodiaea coronaria var. rosea (BRCOR) population. Although this population is just outside the Forest boundary, there is a significant amount of potential habitat for it on the Forest. This expansion significantly increases the total known BRCOR plant numbers and population area, and adds some variety to the habitat parameters of this taxon.

The completion of the Cost-Share "Habitat Management Study of Rare Plants and Communities Associated with Serpentine Soil Habitats in the Mendocino National Forest" by Niall F. McCarten and Chris Rogers moves the Forest closer to the preparation of a Forest Serpentine Habitat Management Plan.

While studying four specific study sites, (one on each of the four Districts of the Forest), McCarten and Rogers identified three additional serpentine plant communities that the California Natural Diversity Data Base should consider recognizing in their terrestrial community classification. Their evaluation of the soils, rare plants, community structure and fire ecology of the study sites provides valuable insights and recommendations that should be heeded by the Forest for improved stewardship of the resources within the Forest serpentine soil habitats.

The results of this Cost-Share study also convinced the Forest to add two species to its sensitive plant list: Astragalus clevelandii and Hesperolinon tehamense. It also increased Forest awareness of other rare plants that need to be considered when evaluating projects in serpentine habitat.

Initial negotiations were made with a cooperator for a Cost-Share Agreement to help prepare a Mendocino National Forest Sensitive Plant Field Guide. The Mendocino was also going to be included in a Shasta-Trinity NF Cost-Share study of Madia stebbinsii, but budget constraints prohibited obligation of funds. Further progress on these projects depends on the FY 92 budget.

Dave Isle gave a slide presentation to Gerry Barney's Orland High School ROP/Forest Service class that focused on both sensitive plants and the overall botanical resources of the Forest. It included general information on the Tree Improvement Program and more detailed information about the Rust Resistant Sugar Pine Program.

Wildlife Biologist Barbara Chaney and Plant Coordinator Dave Isle taught four classes at an enrichment day at Princeton Elementary School. The focus was on forest resources and increased appreciation of the botanical and wildlife components of the Forest.

A streamside road stabilization and improvement project on the Little Stony Road and near Frenzel Creek Research Natural Area on Stonyford District brought about a rash of Tree tobacco (Nicotiana glauca) plants. Jeff Applegate, Acting Resource Officer for Stonyford District, responded promptly, when informed of the invasive nature of this plant, and began an eradication project in cooperation with the Fouts Springs Boys Ranch. This was an example of increased awareness of the value of our native plants and the negative influence of exotic plants on our native biodiversity.

The Stonyford District Resource shop also outplanted native perennial grasses in an experimental project for erosion control and stabilization of a severely eroded Off Highway Vehicle trail. Hundreds of Pine blue grass (Poa scabrella) and California melic (Melica californica) bare root seedlings were outplanted in four chaparral community trail locations that were being restored.

Seeds collected last year and this year from Forest native perennial grasses were tested for germination and grown by Redwood City Seed Company for outplanting on Upper Lake District timber sale roads and banks that need stabilization. A contract for approximately 14,000 bare root seedlings was awarded. Slender hairgrass (Deschampsia elongata), California fescue (Festuca californica), Jepson's variety of blue bunch wild rye (Elymus glaucus var. jepsonii), pine blue grass (Poa scabrella), Bromus laevipes, and California brome (Bromus carinatus) were grown.

This was a major step forward for this Forest in working toward the use of native species and in the maintenance of our own cultivars and germ plasm (native biodiversity). Researchers and the nursery industry have limited experience growing some of the species and varieties of native perennial grasses that flourish on the Mendocino National Forest. Some of the native species with germination, seed storage and propagation secrets are now successfully being grown and outplanted. Germination tests for other grass and herb species were also conducted this year. (This year more requests were made for information regarding native grass, herb and brush seed or cutting availability and propagation. This interest was encouraging.)

Dave Isle searched the Plaskett Meadows area for Linanthus harknessii ssp. condensatus (LIHAC), in an effort to relocate the type location population. He also examined other potential habitat for LIHAC during the Coordinated Resource Inventory reconnaissance work in the area. These searches were unsuccessful.

Involvement in mapping potential natural vegetation for this years 5,000 acre (pilot) Coordinated Resource Inventory for the Mendocino National Forest allowed Isle the opportunity to visit several of the Forest's potential habitats for sensitive plants. Isle was also able to examine and note many of the plants that grow in areas similar to those that the Forest is trying to revegetate or stabilize and to collect seed samples for testing.

The national interest in yew (Taxus brevifolia) for cancer research led to a limited survey of the Forest, in order that the taxol concentration of Mendocino National Forest yew could be included among those being tested. North Zone Tree Improvement Group (on the Klamath National Forest) and Chico Tree Improvement Center (on the Mendocino National Forest) are actively

involved in collecting and propagating test propagules from the Region for those studies.

Botany input has been given for a variety of resource requests this year. Included among these have been botanical input regarding proposed collections for native American basket making materials, collections of lichens, mushrooms. rare conifer cones, and sensitive plant fruits. Public interest in utilizing Forest materials is increasing, and the need to know the potential impacts of these activities may have on the Forest and be able to recommend sound guidelines for collecting and monitoring these resources.

Botany input to the Land Management Plan required a significant amount of time.

Sensitive plant training and job enrichment were given on an individual basis this year, when requests were made for specific project site reconnaissance.

Findings made during the monitoring of the Powderhouse Burn dimorphic snapdraggon (Antirrhinum subcordatum ANSU) population, the Salt Creek Conservation Camp Projects BE (ANSU) and the Fouts Springs Campground Expansion BE (Eriastrum brandegeae) increased our awareness of these sensitive species growth parameters and distribution to the extent that we may be recommending delisting one or both of them from the Forest sensitive plant species list.

Molly Fuller, Corning District's Resource Officer, utilized commercial native grass seed in some of their meadow restoration projects this year.

Jeff Applegate, Acting Stonyford District Resource Officer, and Bob Faust, the Forest Hydrologist, are using some native perennial grasses in their erosion control and revegetation projects. Jeff has California Melic (Melica californica) and Pine Blue Grass (Poa scabrella) bare root seedlings being grown commercially for revegetating an OHV-damaged area. It will be a tough test for the seedlings. Dave Isle collected the seed for the project locally in 1989.

Bob Faust tried some commercial native perennial grass seed in a 1989 experimental revegetation pilot project with little success. This year Isle joined him up on the mountain with both the Upper Lake District's and his own watershed crews for a day of native perennial grass seed collection. Over six pounds of valuable Lemmon's Needlegrass (Stipa lemmonii) was collected on 7/12/90 for use as part of a seed mix for a meadow and watershed revegetation project. S.O. Hydrologist Dennis Doncaster tended and cured the collected seeds in bags that were spread all around his home.

Upper Lake District Silviculturist Jim Harvey has programmed some of their KV timber sale funds for FY 91 for the collection and use of native grasses for stabilizing roads within a sale area. This is a welcome move away from the use of standard seed mixes of introduced species and a great opportunity to give native grasses a "chance to shine", while they help prevent soil erosion.

This fourth year of drought expressed itself through reduced numbers and sizes of some of the annual species of low elevation Forest sensitive plants, but the extra late spring rains made it an unusually good year for native perennial grass growth. Dave Isle was able to make some additional small seed collections on private and Forest land in anticipation of upcoming experimental and project use of natives on the Forest. Dave Isle distributed to the

Districts a resource package containing some commercial sources of native grass seed and propagation information to encourage their use of native grasses.

MODOC NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

Yes. The Forest hired a GS-7 Seasonal Botanist from June 10 until July 23 (3.5 pay periods). This person resigned for personal reasons and the position was left vacant.

2. **Did the Forest use volunteers to do plant work in FY 91?**

No.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

Surveys were conducted for timber sale treatment units and proposed roads.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 91 budget direction?**

No. Our seasonal botanist resigned before this could be accomplished. Several previously unknown populations of Antennaria flagellaris and Ivesia paniculata were found and recorded. Some areas of concern were discovered also. Updated plant population information was mapped at the Forest and Quad level, and site survey forms were prepared for the California Natural Diversity Data Base. Surveys and population updates were coordinated with neighboring Forests.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

No.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 4150.00
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ -0-
Total Forest Plant Program	$ 4150.00

Nearly $4000 is planned as carry-over funds from FY 91 when the summer seasonal botanist was not re-filled.

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

Antennaria flagellaris:	2 new populations
Calochortus longebarbatus longebarbatus:	2 new populations
Ivesia paniculata:	2 new populations
Mimulus pygmaeus:	1 new population

8. **Other activities**

-Coordination with PGE Gas Pipeline surveys and evaluations.
-Training District Coordinators in identification of Forest Sensitive Plants.
-Survey work for Antennaria and Poa fibrata in other project surveys (besides timber sales).
-Verification of Calochortus populations north of Hwy 139.
-Monitoring fenced Calochortus populations to check response to 1990 fencing.
-Monitoring one fenced Cypripidium montanum population on Devil's Garden Ranger District. Population grew from 26 plants to 31 plants since 1990.

PLUMAS NF **********

1. Did the Forest hire a botanist or seasonal(s) in FY 91?

The Plumas has a permanent full-time Forest Botanist, Linnea Hanson. In March, Joan Reynolds started as a permanent full-time Assistant Forest Botanist for the Plumas. And in January, 1991 Stacy Scott started as permanent full-time Botanist for the Milford RD.

On the Plumas, each District Ranger assigns a Sensitive Plant Coordinator to coordinate all district botanical needs and to serve as the primary link between the district and the Forest Botanist. The district sensitive plant coordinators for FY91 were:

Beckwourth RD-Mike Foster/Shannon Quinsey, Range
Greenville RD-Gary Rotta, Wildlife Biologist
La Porte RD-Art Rohrbacher and Ginelle O'Connor, Wildlife Biologists
Oroville RD-Vince Carter, Forester
Milford RD-Ceci Dale-Cesmat, Range
Quincy RD-Dave Johns, Forestry Technician

11 NTE Botanists and 3 Biological Technicians were hired for the FY 91 field season. Four NTE Botanists returned from last year. Two NTE Botanists on the La Porte RD job shared a position. These botanists were hired to conduct sensitive plant surveys, write Biological Evaluations (BE's) for proposed timber sales and conduct monitoring to assess the impacts of timber sale activities on sensitive plant species. The following are the individuals and the districts they worked on for FY 91:

Beckwourth RD-Lawrence Janeway and Garrett Gibson
Greenville RD-Hal Durio
La Porte RD-Robin Fallscheer, Loren Gehrung, Gail Kuenster, Jean Witzman, and Ann Francis.
Oroville RD-Barbara Castro and Jacque Jurewicz
Milford RD-John Dittes and Randy Counsineau
Quincy RD-Jim Battagin and Michael Cutler

On the districts, personnel besides the botanists have been trained to conduct plant surveys and to prepare BE's to be reviewed by District and Forest Botanists. Several members of the range and wildife crews individually aided in the Beckwourth RD sensitive plant surveys for both salvage and green sales. Plant monitoring data was collected by Yvonne Cougoulat-Forestry Technician/Wildlife and Gary Rotta-Wildlife Biologist on the Greenville RD. On the La Porte RD; Bob Novotny-Sale Administrator, Brad Seaberg-Small Sales Officer, Trisha Humpherys-Recreation Planner, Sue Cueva-Hydrology Technician and Ginelle O'Connor-Wildlife Biologist, conducted plant surveys needed for projects. On the Oroville RD, the archaeologists surveyed salvage sales and the Loggings Systems Module-Vince Carter, Jim Munn and Bob Lowdermilk, surveyed land the forest acquired for sensitive plants. The timber marking crew on the Milford RD helped a few days doing plant surveys. On the Quincy RD, Dave Johns-Forestry Technician, and the salvage sale crew completed sensitive plant surveys for timber sales. The timber marking crew assisted with monitoring and native grass collection on the Quincy RD.

2. Did the Forest use volunteers to do plant work in FY 91?

Volunteers from the California Native Plant Society were involved in the Special Interest Area (SIA) Challenge Cost Share. Toni Fauver has continued her Flora of the Lakes Basin Recreation Area which is in draft. A volunteer agreement has been developed with the Telephone Pioneers of America for the development of a trail and boardwalk in the Butterfly Botanical Area. The Beckwourth RD used a volunteer for a day to help with timber sale plant surveys.

3. Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91

On the Plumas, each district is responsible for the initial surveying for sensitive plant species for their proposed projects. If sensitive species are located then the Forest or Assistant Forest Botanist is consulted, as needed, for technical advice. The Forest Botanist and Assistant Forest Botanist reviewed, edited and signed 82 Biological Evaluations and 23,071 acres were surveyed for potential projects. This season the surveys for sensitive plants has been concentrated in proposed salvage sales. Besides assisting with concerns on district projects, the Forest Botanist and Greenville District Botanist met with CalTrans regarding tree removal along Hwy 89 and Astragalus webberi impact, and the Forest Botanist met with the Dept. of Water Resources personnel regarding a proposed cloud seeding project. The Forest Botanist was also involved with the development of the conservation strategy and BE for the State Lands Trade.

Timber	60 Salvage Sales	12,886 acres surveyed	47 BE's
	16 Green Sales	6,289 acres surveyed	3 BE's
	13 Misc. Sales	1,707 acres surveyed	5 BE's
Resources			
	39 Special Uses and Recreation	558 acres surveyed	22 BE's
	2 Mining Projects	36 acres surveyed	
	4 Land Exchanges	1290 acres surveyed	3 BE's
	6 Rehab projects	35 acres surveyed	1 BE
Fire	Fire Camp Location	60 acres surveyed	
Range	Ferris Field Allotment	200 acres surveyed	
	Meadowview Allotment	10 acres surveyed	1 BE
PLUMAS NF TOTALS		23,071 acres surveyed	82 BE's

Monitoring: Monitoring has continued to assess the impact of timber sale activities and cattle grazing on sensitive plant species with 6,000 acres and 10 transects involved.

4. Did the Forest develop an interim or complete a species management guide?

The draft species management guide on the Quincy Lupine (Lupinus dalesae) with the Lassen NF continued with Mike Foster taking the lead effort which switched to Jim Battagin when Mike became the new forest botanist on the Eldorado NF. The draft species management guide for the Sierra Valley and Plumas Ivesias (Ivesia aperta and Ivesia sericoleuca) with the Tahoe and

Toiyabe NF has continued with contributions from Stacy Scott. Jim Battagin has started a species management guide for the Mountain lady's slipper (Cypripedium montanum). An interforest meeting to discuss the status of the Silene invisa guide occurred on the Tahoe NF with participation from the Plumas, Tahoe and Lake Tahoe Basin Mgmt Unit. Oroville RD began implementation of the Penstemon personatus Species Management Guide in conducting the data analysis to determine the reserve areas to maintain the genetic and geographic variability of the species.

5. Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)

Two Challenge Cost-share projects were started. Isozyme analysis of Fritillaria eastwoodiae, Pinus washoensis and Vaccinium coccinium was begun by California State University, Chico graduate students under the direction of Jim Pushnik, Dept. of Biological Sciences with the Plumas NF contribution $8,455.00 and the Tahoe NF Contribution $1,000.00. Plant specimens will be collected and analyzed by starch gel electrophoresis at several gene loci. A better understanding of the species genetic background will assist in resolving the taxonomic status and genetic diversity in these three species.

An evaluation of proposed Special Interest Areas occurred with the California Native Plant Society with Pamela Owings as the CNPS coordinator for the project last summer. CNPS filed an administrative appeal of the Plumas Land Management Plan and requested that additional botanical SIA's be designated. The Plumas NF contribution was $3,000. Field trips to develop plant lists and determine potential boundaries were conducted with Forest Service and CNPS volunteers to Valley Creek, Brady's Camp, McRae Meadow, Dixie Mountain, Mt. Fillmore, Red Hill, McNab Cypress, Fales Basin, Mtn. House Creek, and the Eastern Escarpment. The information gathered will be used to prioritize areas for formal SIA designation.

6. $$ spent on TES plant program during FY 91 by the following funding sources

Appropriated funds (all Forest Service sources & cost-share) (includes salvage and Timber receipt)	$192,384.00
Contributed funds & cost-share from non-Forest Service sources	$ 12,705.00
Knutson-Vandenberg funds	$ 22,818.00
Total Forest Plant Program	$227,907.00

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 91

SPECIES	OCCURRENCES
SENSITIVE:	
Arabis constancei	5
Astragalus lentiformis	12
Fritillaria eastwoodiae	4
Lupinus dalesae	11
Ivesia aperta	2
Ivesia sericoleuca	3
Penstemon personatus	1
Sedum albomarginatum	1

Senecio eurycephalus var. lewisrosei	3
Silene invisa	10 with 5 location extensions
Vaccinium coccinium	5 with 1 location extension

SPECIAL INTEREST:

Carex geyeri	16
Cypripedium californicum	1
Cypripedium fasciculatum	5
Cypripedium montanum	2
Darlingtonia californica	1
Taxus brevifolia	19
Viola tomentosa	8

8. Other activities

Beckwourth RD:
Botanist led a Webelo group for 2 hours each of 3 days, helping prepare them for their naturalist and outdoorsman activity pins. Presented a field How-to key Sedges day for the Plumas botanists, plus introduction to new Special Interest Species, Carex geyeri.

Greenville RD:
Evaluated the Hosselkus Limestone Area in the Greenville RD as a possible Special Interest Area with Assistant Forest Botanist. A large number of plants were collected, pressed and identified to begin a herbarium of the flora of the Greenville RD by Hal Durio.

La Porte RD:
Developed tracking procedures for inventory of Pacific Yew with Oroville RD.

Oroville RD:
Field trip with Kathy Van Zuuk and other Tahoe NF personnel to familiarize them with Fritillaria eastwoodiae and its closest relatives. Requested upgrade of status of Fritillaria eastwoodiae with the California Native Plant Society from List 3 (more information needed) to List 1B (Threatened within California and elsewhere).

Milford RD:
Field trip to review Meadowview Ivesia aperta monitoring with Plumas botanists.

Quincy RD:
Collected native grass seed for rehab project use. District Sensitive Plant Garden was written up. Field trip to proposed Silver Creek Ecological corridor with Plumas botanists with partial plant list completed. Started District Sensitive Plant Herbarium. Field trip to Butterfly Botanical Area with Marcella King-Ben from R.O. and another trip with botanist Walter Knight. Presented Sensitive Plant Display in District receptionist area.

SENSITIVE PLANT PROGRAM:

Revised Goals, Roles and Responsibilities of the Sensitive Plant Program, Special Interest List and Interim Management Prescriptions and Sensitive Plant Training Packet. Developed guidelines and conducted training session in writing plant BE's. Presented annual update of the Plumas Sensitive Plant

Program for the Plumas Leadership Team. Conducted field training sessions on the Beckwourth, La Porte, Oroville, and Quincy RD. Conducted annual Temporary Botanist Orientation. Besides field trips to review potential SIA's, botanists were also involved in a field trip to review the Meadowview Ivesia monitoring, the Silver Creek Ecological Corridor and a training session on how to key Carex species. Held a meeting with permanent botanists on forest to plan direction of program.

SPECIAL INTEREST AREAS:

Assistant Forest Botanist began preliminary work for a .5 mile botanical interpretive trail in the Butterfly Valley Botanical Area. As the Project Coordinator, the Assistant Forest Botanist is developing partnerships with numerous groups to help in the building, supporting and interpreting the trail, and leading the ID team in the NEPA process and public scoping.

AIR QUALITY PROGRAM:

Developed introductory training information for Wilderness Rangers to assist in the lichen monitoring and provided field training. Conducted field work in wilderness to determine tree and rock lichen monitoring locations.

NATIVE GRASS USE:

Forest and Assistant Forest Botanist attended meetings of the California Native Grass Association. Assistant Forest Botanist attended a native grass roadside rehabilitation demonstration with CNGA and developed native grass seeding recommendations for the Plumas NF, including different habitat types and elevations. Native grass seed was collected on the forest by Jim Battagin, Quincy RD and hydrologists and range personnel on La Porte RD. Native grass reseeding sites on roadbanks and a ripped road were monitored on Quincy RD. Native Grass Seed mixtures were developed for the Greenhorn Creek consolidated resource management project and Tussock Spring on Quincy RD was rehabilitated using native grass seed.

WETLANDS:

Assistant Forest Botanist reviewed wetlands for the Bucks/Forebay water diversion project and a land exchange on the Milford RD.

STRENGTHENING PARTNERSHIPS:

Intraforest:
Attended Forest Timber Inventory and Vegetation Mapping meetings. Participated in CNPS Appeal meetings. Participated in Plumas New Perspectives meetings. Participated in the Forest Fish, Wildlife, and Plant meetings and visit from RO.

Interforest:
Forest Botanist:Received R-5 TES Plant Award for FY91. Participated in a panel on BE's, Species Mgmt Guides and ID Team member for the R6 Botany meeting. Gave a talk for the WO Shortcourse for New Biologists on Staying in Place for both R5 and R6. Gave a talk on Developing A Forest Plant Program for R8 Biologist Meeting.

Plumas Botanists participated in the development and subsequent meetings of the Northern Forest Botanists of California. Assistant Forest Botanist facilitated the May meeting.

Other Agencies, conservation groups, universities and industry:

Forest Botanist attended monthly California Native Plant Society, Mt. Lassen Chapter meetings. Forest Botanist gave a talk on the Plumas National Forest Sensitive Plant Program for the Lake Oroville Visitor Center, CA Dept. of Parks and Rec. Field trip with Plumas botanists and Natalie Hopkins, CNPS and Roxanne Bittman, CA DFG Botanist and Tahoe NF botanists to see Ivesia aperta, Ivesia sericoleuca and Astragalus lentiformis.
For Centennial Celebrations the Forest Botanist assisted with a display at the Endangered Species Fair in Chico and the Assistant Forest Botanist hosted an interpretive public walk on the Feather Falls trail.

SAN BERNARDINO NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

The Forest continued to fund 1.8 permanent FTE's, one Forest Botanist in the Supervisor's Office and one District Botanist on the Big Bear Ranger District. The Forest also hired 3 temporary botanists. Tamara Mallon and Julie Greene conducted TES plant surveys on proposed projects and assisted in completing TES plant monitoring and habitat protection activities. Whitney Donaldson led a revegetation/trail crew on the Cactus Flat Off Highway Vehicle route.

2. **Did the Forest use volunteers to do plant work in FY 91?**

The Forest used volunteers on several projects during FY 91.

Suzanne Faulkenbury assisted with TES plant surveys.

Approximately 30 volunteers from the Sierra Club helped collect native seed and transplant native vegetation for the Cactus Flat Off Highway Vehicle project.

Dina Roberts and Eddie Pausch contributed approximately 30 hours transplanting plants and building fence along the Cactus Flat Off Highway Vehicle Trail.

The Forest benefited from volunteers from the Lorquin Society who collected insects in several of our rare plant communities. Marlyce Myers of The Nature Conservancy arranged for this group of entomologists to collect on our Forest as part of TNC's statewide inventory project. The Forest provided use of a group campsite in exchange for their services.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

Plant surveys were conducted on a variety of projects including:

TYPE	NUMBER	ACRES/MILES
Fuelwood sales	11	1650 a.
Management Areas	1	1200 a.
Utility lines	5	27 m
Mining (new development)	2	120 a.
Mining (reclamation)	1	5 a.
Hiking/Equestrian Trails	7	23 m & 75 a.
Organizational Camp developments	5	62 a.
OHV routes	6	52 m
Road realignments	1	2 m
New Roads	1	1 m
Land Sales/exchanges/acquisition	4	500 a.
Other Recreation Projects	3	60 a.
Misc.	2	2 a.

Third party consultants have been brought in on several projects on our Forest to complete environmental work. We spent time working with the consultants on survey needs, document content, etc. These projects include utility lines, road realignments and mining.

Biological evaluations were completed or are in progress at this time for the activities which have potential to affect sensitive plant species.

4. Did the Forest develop an interim or complete a species management guide?

The Forest began working on a Habitat Management Guide for five species of plants endemic to carbonate substrates in the San Bernardino Mountains. Completion of this guide will involve cooperation between the Forest, California Native Plant Society, California Department of Fish and Game, Bureau of Land Management, California Division of Mines and Geology and the mining industry.

5. Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)

The Forest continued working on two ongoing challenge cost share projects with The Nature Conservancy:

Data collection for the annual TES plant monitoring program for meadow habitat (Thelypodium stenopetalum and Sidalcea pedata) and pebble plain habitat (Arabis parishii, Arenaria ursina, Eriogonum kennedyi ssp. austromontanum, Echinocereus engelmannii var. munzii and Linanthus killipii) was completed.

We continued work on the study of Geographic Variation in Munz's Hedgehog Cactus started in FY 1990.

The Friends of Big Bear Valley Preserve contributed a part time position to patrol TES plant habitat closures and maintain all fences and signs. This contribution matched the efforts of Forest personnel.

6. $$ spent on TES plant program during FY 91 by the following funding sources

Appropriated funds (all Forest Service sources & cost-share)	$82,750
Contributed funds & cost-share from non-Forest Service sources	$15,544
Knutson-Vandenberg funds	$ 802
Total Forest Plant Program	$99,096

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 91

SPECIES	OCCURRENCES
Astragalus albens	1
Astragalus leucolobus (CNPS)	8
Echinocereus engelmannii var. munzii	4
Erigeron parishii	1

Eriogonum ovalifolium ssp. vineum	1
Lilium parryi	1
Mimulus purpureus	1[1]
Monardella nana ssp. leptosiphon	1
Orthocarpus lasiorhynchus	3[2]
Oxytheca parishii var. goodmaniana	1
Phlox dolicantha	1
Senecio bernardinus	2[3]
Streptanthus bernardinus	6

[1] Located by Linda Allen, graduate student at California State Polytechnic University at San Luis Obispo.

[2] Found by Glen Clifton of Biosystems Analysis, Inc. on contract to Southern California Edison.

[3] Two populations located by Orlando Mistretta of Rancho Santa Ana Botanic Garden, one population located by Tamara Mallon, one population located by Michael Brandman Associates biologists.

8. Other activities

External Communication and Marketing:

Botanists gave botanically oriented presentations to the Santa Monica Mountains Chapter of CNPS and volunteer groups and university classes.

Botanists led wildflower walks for a Natural Resource Management class from San Bernardino Valley College, San Gabriel Chapter of CNPS, a biology class from University of Redlands, staff of Orange County outdoor schools at Camp Round Meadow, docents from Rancho Santa Ana Botanic Garden, Friends of Big Bear Valley Preserve and members of the general public.

Big Bear District Botanist participated on a design team with the Bureau of Land Management and The Nature Conservancy. During this week long session the team designed a continuing education course on Inventory and Monitoring of Special Status Plants.

We continued work on a watchable wildlife interpretive display illustrating native and TES wildlife and plant species as well as good viewing areas.

We continued to develop slide and photo reference files of plants and habitats on the forest.

The revegetation effort associated with the Cactus Flat OHV project was highlighted in the newsletter of the San Gorgonio Chapter of the Sierra Club.

Internal Communication and Marketing:

The Big Bear Botanist wrote an article on the Cactus Flat OHV project for the employee newsletter "The Bear Facts". This article described the revegetation efforts associated with this project and announced volunteer opportunities.

Big Bear District Botanist presented a talk on the Big Bear RD monitoring program to the TES plant workshop in R-6 in April.

Conducted three day orientation for temporary Botanists. Topics covered included introduction to the Forest Service, ethics and conduct, safety, vehicle maintenance, the botany and sensitive plant program and identification of our TES plants.

Began training a paraprofessional botanist on the Arrowhead Ranger District to conduct TES plant surveys on project proposals.

Assisted Big Bear Ranger District Interpreter with plant identification for nature walks.

Expand Knowledge of Sensitive Plants and their Habitats:

Botanists worked with students and professors at University of California, Riverside to generate interest in conducting research on TES plant species.

We continued the revision of the SBNF Sensitive Plant Atlas but this project was not completed.

Conducted the second year of sampling for three administrative studies designed to determine the effects of recreational activities and timber harvest on three TES plant species: Arabis parishii (recreation & timber harvest), Phlox dolicantha (timber harvest) and Mimulus purpureus (recreation).

Searched additional areas for Dodecahema leptoceras using California Department of Fish and Game funds and monitored fencing efforts.

Began to monitor grazing effects on sensitive plants.

Worked with the Center for Arid Land Restoration to develop revegetation techniques for the Forest.

Completed study plan for an administrative study of Thelypodium stenopetalum. We will be implementing this study during FY 92 after coordination with USFWS.

Worked with Tree of Life Nursery to learn about the use of mycorrhizae in native plant restoration and revegetation.

Assisted Mary Burke, FS Contractor, with logistical support and plant identification for completion of RNA Establishment Records.

Protect and Improve Habitat for Sensitive Plant Species

Closures designed to protect pebble plain habitat were maintained and reinforced at Union Flat, Nelson Ridge and Upper Sugarloaf.

A fire crew erected fencing to protect Orthocarpus lasiorhynchus habitat being impacted by vehicle activity.

Pebble plain habitat in the Sugarloaf area was protected through road closures. This project was partially funded by California Department of Fish and Game Coop money.

Compiled data on private land parcels supporting TES species in the Big Bear Basin for potential acquisition. Information compiled included elements present, locations, assessors parcel numbers, owners name and address and identified threats. This information will help the forest identify private land parcels important for acquisition.

Other

The Big Bear District made efforts to streamline the survey and biological evaluation (BE) process by developing a standard survey request form and a fill in the blank BE form. The forms were tested this year and will be modified for the next field season based on user input.

Tamara and Julie developed short summaries of the status and ecology of 12 TES plant species. These summaries can be read into the background sections of biological evaluations as they are needed.

Big Bear Botanist and Julie Greene developed a revegetation proposal for a mined quarry. This project will be completed in conjunction with Pfizer, Incorporated (a mining company) and the Center for Arid Land Restoration. Activities include salvaging plants, growing and planting containerized stock and sowing seed. We will be experimenting with different planting techniques to assist the mining companies with their reclamation efforts.

Tamara and Julie collected seeds from 19 different native plant species for the revegetation projects at Cactus Flat and at Pfizer's Gordon Quarry.

Participated in a south zone ecosystems meeting to determine the direction of the program in the south zone.

Participated in a portion of the Sale Administration Workshop/Training to discuss sensitive plants on timber sales.

Assisted in a field test of the Chaparral Types of the Transverse Ranges with south zone ecologists.

SEQUOIA NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

Yes. Linda Tanner was hired on the Hot Springs Ranger District as a botanist, GS-430, with responsibilities also in silviculture, sale planning and database management.

Seven seasonal employees were hired specifically for sensitive plant field surveys. Additional crews totalling 34 people from other projects were used to assist with the surveys.

2. **Did the Forest use volunteers to do plant work in FY 91?**

No volunteers were used.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

Project	Acres Surveyed	Biological Evaluation
1. Stormy II Fire Salvage	4,500	2
2. Jack Timber Sale	1,800	1
3. Red Hill Timber Sale	2,000	1
4. Weaver Timber Sale 5. Box Helicopter Salvage 6. Hume Insect Salvage 7. Pine Mill Salvage	26,000	4

All populations found were mapped, documented and flagged to be protected and excluded from any timber harvesting activities.

4. **Did the Forest develop an interim or complete a species management guide?**

Work is continuing on an a revision of the existing species management guide for Calochortus westonii.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

The Forest just entered into a five-year Challenge Cost-Share Agreement with San Francisco State University, Department of Conservation Biology, to conduct a demographic study of Calochortus westonii.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropiated funds (all Forest Service sources & cost-share)	6,400
Contributed funds and cost share from non-Forest Service sources	6,000
K-V Funds	-0-
Excess Timber Receipts	10,000
Salvage Sale Funds	55,000
Total	$77,400

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

Sensitive Species	New Occurrences	Plants
Calochortus westonii	47	77,000
Erigeron multiceps	24	1,650
Horkelia tularensis	1	10,500
Eriogonum twisselmannii	1	30

8. **Other activities**

1. Designed Sensitive Plant Program t-shirt for the Forest.

2. Conducted preliminary survey of Baker Point Botanical Area for the development of a flora identification guide.

3. Installed sign on trail to Bald Mountain Botanical Area to describe area for forest visitors.

4. Updated Cannell Meadow Ranger District Sensitive Plant Manual to include all new data collected in FY 1990 and 1991.

SHASTA-TRINITY NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

Yes--Vivian Long, GS-4 seasonal, senior in botany at CSU Chico.

2. **Did the Forest use volunteers to do plant work in FY 91?**

Staff of Sierra Pacific Industries and the California Dept. of Fish & Game assisted with monitoring and botanical investigations of Phacelia dalesiana and Frasera umpquaensis.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

TYPE	ACRES	# BEs
Timber sales	18,250	19
Land exchanges	625	2
Mining claims	500	3
Road constr./maint.	110	3
Recreation developm.	40	1
Range improvements	5	1
Other	12	2

4. **Did the Forest develop an interim or complete a species management guide?**

Two draft species management guides were developed, for Phacelia dalesiana and Cordylanthus tenuis ssp. pallescens

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

Two challenge cost-share projects were completed, both with The Nature Conservancy. One project included a complete habitat survey of Phacelia dalesiana and correlation of management history with population condition. The other was an expanded survey of Cordylanthus tenuis ssp. pallescens habitat and establishment of a baseline monitoring program for this taxon.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 72,000
Contributed funds & cost-share from non-Forest Service sources	$ 10,550
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$ 82,550

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 91

1	Arctostaphylos klamathensis
14	Cordylanthus tenuis ssp. pallescens
2	Erythronium citrinum var. roderickii
2	Minuartia rosei
2	Penstemon tracyi
3	Phacelia dalesiana
5	Raillardella pringlei

8. Other activities

*Forest Botanist provided 150 hours of assistance to CA Dept. Fish & Game for vegetation damage assessment of Cantara chemical spill on Upper Sacramento River.

*Mt. Shasta Ranger District hired two graduate students to produce rehabilitation plan for meadow systems on Mt. Shasta. Rehab will benefit the sensitive species Campanula wilkinsiana and meadow vegetation in general.

*Forest Botanist designed and conducted study of fire and mechanical disturbance on Phacelia dalesiana, with assistance from PSW, Sierra Pacific Industries, Mt. Shasta Ranger District fire management staff, and Cal. DFG. PSW provided help with study design and data analysis; SPI participated in all aspects of design and implementation; and the district provided engine and crew for controlled burn of study plots. California Dept. of Fish and Game assisted with data collection.

*Forest Botanist helped District Rangers develop permit system for collection of alternative forest products such as cones and dried flowers.

*Forest Botanist participated in Interagency Natural Areas Coordinating Committee to coordinate protection efforts with other state and federal agencies.

*Forest Botanist took Calif. Dept of Fish & Game Natural Heritage Program personnel on tour of sensitive plants of Shasta NF.

*Forest Botanist participated as ID team member for Land Management Plan and provided Plan input for TES plants, Research Natural Areas, and Special Interest Areas.

*Forest Botanist met regularly with botanists from other National Forests in northern California to coordinate activities and share information of mutual interest.

*Forest Botanist and Mt. Shasta Ranger District staff maintained grazing exclosures for Raillardella pringlei monitoring.

*Mt. Shasta Ranger District performed meadow maintenance on 100 acres, providing benefits to Raillardella pringlei populations.

*Forest Botanist provided revegetation/seeding information to district staff for wildfire rehab and mining claim reclamation.

*Mt. Shasta Ranger District Wildlife Biologist monitored Phacelia cookei and Raillardella pringlei populations.

*Over two hundred herbarium specimens were collected for deposit at S.O. herbarium, Jepson Herbarium, Cal. Academy of Sciences, and CSU Chico.

*Forest Botanist provided 60 hours of plant identification services to Zone Ecology and Range programs.

SIERRA NF **********

1. Did the Forest hire a botanist or seasonal(s) in FY 91?

The Sierra has a permanent, full-time Forest Botanist, Joanna Clines. Five temporary botanists were hired during FY 91: Eric Liskey worked intermittently from January to June, assembling a Sensitive Plant Atlas for the Forest and updating files. Burleigh Lockwood took a break from spotted owls for the month of January to assist with the effort. During the field season, Eric Liskey, Scott Wilson, and Susan Moore worked full time conducting sensitive plant surveys. Eric began gathering data on Collomia rawsoniana for his M.A. Jim Bouldin was hired with funds transferred to the Sierra N.F. from the US Fish & Wildlife Service to work on pre-recovery activities for Clarkia lingulata.

2. Did the Forest use volunteers to do plant work in FY 91?

Yes. Members of the California Native Plant Society, Boy Scouts of America, and CSU Fresno Biology Department assisted Forest Service employees in building a fence to protect Carpenteria californica in the Backbone Creek RNA from trespass cattle. Eric Liskey, Jeanne Larson, and Craig Poole volunteered their services intermittently throughout the field season. The value of their combined services totalled approximately $3,000.00.

3. Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91

TYPE OF PROJECT	AREA SURVEYED
20 salvage timber sales	60,000 acres
1 gold mine expansion	320 acres
10 miles of trail	700 acres
Herbicide treatment units	320 acres
TOTAL: 33 projects	61,340 acres

In addition to the 33 projects surveyed, sensitive plant input was given for 21 projects that did not require surveys.

Total number of projects: 54.

4. Did the Forest develop an interim or complete a species management guide?

No.

5. Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)

The Sierra NF accomplished four projects with the help of various partners:

1. Fence to exclude cattle from Backbone Creek Research Natural Area

In response to the need to prevent cattle from destroying seedlings of Carpenteria californica, the Forest provided $2,000 in fence materials, and solicited volunteers to assist with construction. Volunteers from the

California Native Plant Society, Boy Scouts of America, California State University Fresno, and the Forest Service contributed $2,000 in labor.

2. Study of the effects of disturbance on Rawson's flaming trumpet

In response to the need to know more about the effects management activites on Collomia rawsoniana, the Botanist solicited the help of California State University, Fresno graduate student Eric Liskey. The Forest and the University collaborated in the study design, and Eric gathered data and set up plots, partially as a paid temporary emoloyee funded by salvage timber funds, and partially as a volunteer. Both the University and the FS provided field sampling equipment, and the FS expended salvage timber funds for fencing materials to exclose selected plots. The FS spent approximately $700 on materials and time, and Eric volunteered approximately $700 worth of labor.

3. Pre-recovery effort for Merced Clarkia

The Forest spent $1,600 of an $8,000 allocation from the US Fish & Wildlife Service earmarked for pre-recovery activities for Clarkia lingulata. The money was transferred to the Forest Service so that the FS Could undertake the task of establishing a third population of merced clarkia in its native habitat. The money will be spent over the course of several years. The FS hired Universtiy of California (Davis) graduate student Jim Bouldin. Jim spent several weeks inventorying the two existing populations, and is currently growing seed collected in the field in order to produce a large enough quantity to effect a successful introduction. Preliminary searching for suitable introduction sites was undertaken in FY 91. The Forest spent approximately $1,000 in addition to the USFWS funds, mostly for planning, study design, and coordination with other agencies about this State-endangered plant.

4. Study of Reproductive biology of tree-anemone

The California Department of Fish & Game contributed $2,000 for the purpose of continuing the Forest's ongoing demographic study of the state-threatened shrub Carpenteria californica. The study involves taking data on various aspects of reproductive biology and monitoring seedling establishment/survival in the Powerhouse Fire area. The data will be used to devise an effective management strategy for the plants. The Forest hired Susan Moore, a botany student at California State University, Fresno, to assist in gathering and processing data. The Forest contributed equal funds toward this project in wages for the Botanist, for total of $4,000 spent on this project.

6. $$ spent on TES plant program during FY 91 by the following funding sources

Appropriated funds (all Forest Service sources & cost-share)	$ 49,000
Contributed funds & cost-share from non-Forest Service sources	$ 6,300
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$ 55,300

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 91

SPECIES	# NEW OCCURRENCES
Camissonia sierrae ssp. alticola	2
Carpenteria californica	1
Collomia rawsoniana	16
Eriogonum pattenianum var. avium	1
Eriophyllum congdonii	1
Ivesia unguiculata	4
Lupinus citrinus	21
Raillardiopsis muirii	1
Total # new occurrences	47

8. Other activities

SLIDE TALKS

The Botanist gave slide presentations about the Sensitive Plant Program to the Fresno County Sportsman's Club and the Fresno Zoological Gardens Docents. She also presented preliminary results of the Carpenteria californica reproductive biology study at the Twelfth Annual Central California Research Symposium held at California State Universtiy, Fresno in May. Joanna also gave a talk about poisonous plants at the Forest safety meeting.

SENSITIVE PLANT ATLAS

Thanks to the hard work of Eric Liskey, the Sierra National Forest now has an Atlas of sensitive plant locations as well as surveyed areas. Each district has a copy to be used for preliminary project planning and general reference. This very useful product was made possible by the salvage timber program.

SENSITIVE PLANT BINDERS

As there had been no Forest Botanist since 1983, and the district and S.O. sensitive plant binders had been last updated in 1979, it seemed appropriate to remedy this matter. The "slow" winter months were speeded up with this task, largely carried out by Burleigh Lockwood and Eric Liskey.

MEMORANDA OF UNDERSTANDING WITH OTHER AGENCIES

Merced Canyon - The MOU with Pacific Gas & Electric Company, California Department of Transportation, California Department of Fish & Game, Bureau of Land Management and the Forest Service is nearly finalized after nearly two years of working out kinks and resolving various conflicts. Protection for five sensitive plants and one amphibian will be provided for by this agreement.

Clarkia lingulata - An MOU with California Department of Fish & Game is being worked on currently. As this is a State-endangered plant, the Forest is entering into an agreement with the State regarding the process of collecting seed and attempting to establish a third population with funds from USFWS.

SIX RIVERS NF **********

1. Did the Forest hire a botanist or seasonal(s) in FY 91?

No.

2. Did the Forest use volunteers to do plant work in FY 91?

Yes. Volunteer time totalled 68 hours which is equivalent to approximately $700.00 cost to government. Members of the California Native Plant Society and a senior volunteer contributed to the program in a variety of ways: a. constructing a fence around Bensoniella oregana (the site represents the only occurrence of this species on public lands in California) to protect the population from further cattle damage, b. identifying resource damage in the Lassics Botanical Area as a follow-up to the previous year's cost-share agreement with CNPS and providing technical advice, and c. identifying resource damage in a bog habitat.

3. Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91

The intensity of timber sale, small sale, land exchange and project surveys was related to the potential habitat in the area and information about existing sensitive plant populations. The following chart displays the acres evaluated including office (database queries, airphoto review) and field investigation, and the acres actually field surveyed.

	Acres Evaluated	Acres Surveyed
Timber Sales (7)	14,880 acres	2,000 acres
Small Sales (11)	790 acres	25 acres
Land Exch. (3)	10 acres	5 acres
Projects (5)	300 acres	25 acres
Monitoring		25 acres
TOTAL	15,980 acres	2,580 acres

Thirteen BE's were written as a result of the aforementioned surveys.

4. Did the Forest develop an interim or complete a species management guide?

The draft Species Management Guide for Sanicula tracyi has been re-written and updated to include current information on the management of the species and a monitoring plan which was implemented this year. A final document is scheduled for completion in the next fiscal year. Work began on a Species Management Guide for Bensoniella oregana in FY 91. A graduate student conducting research on this species will be brought on at the beginning of FY

92 to continue compiling information, to assist in developing a monitoring plan and to write a draft guide.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics--who was the partner etc.)**

   No.

6. **$$ spent on TES plant program during FY 91 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$31,162.45
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$31,162.45

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

Sanicula tracyi	10
Dicentra formosa ssp. oregana	1
Sedum laxum ssp. flavidum	1
Horkelia sericata (watch list)	1
Cypripedium montanum (watch list)	1

8. **Other activities**

DATABASE DEVELOPMENT:

* In coordination with the Information Systems Management Branch, a Sensitive plant database is being developed in ORACLE. The database entitled ARABIS (for Automated Resource and Botanical Information System) is a protocol for a USFS, Region 5 database that would standardize sensitive plant data, promote communication between Forests and other agences and provide a link to GIS applications. The database was also designed to be compatible with the California Natural Diversity Database (CNDDB) which will facilitate sharing information between CNDDB and Region 5 Forests. Approximately 1-1 1/2 months were spent on gathering information about any existing databases in Region 5 and Region 6, speaking with Region 5 Botanists regarding the development of a database, communicating and meeting with CNDDB personnel to discuss compatibility issues, seek technical assistance and acquire the Database's RAREFIND (which is currently stored on Bernoulli cartridge at Six Rivers), developing structure and syntax for the database, developing a training guide, soliciting Regional approval, re-formatting RAREFIND for ORACLE use and sharing the outcome of this work with botanists representing the Shasta-Trinity, Plumas, Lassen, Klamath and Mendocino National Forests.

PLANT AND HABITAT PROJECTION PROJECTS

* Constructed a fence (120 x 20') around an occurrence of Bensoniella oregana in order to protect future cattle damage using volunteers from CNPS. Project required the appropriate NEPA documentation. Also provided technical and logistic support for graduate student investigating this species.

* Awarded a grant from the Off-Highway Vehicle Commission to rehabilitate ("put to bed") a jeep trail within the Lassics Botanical Area which is causing off-site impact to sensitive plant habitat. Dollar amount awarded= $2800.00.

INTRA-AGENCY AND INTERAGENCY RELATIONS

* Coordinated the meeting of the northern botanists to discuss issues related to the Sensitive Plant Program and issues that warrant more coordination among the Forest Botanists. The group welcomed the time to share information and the idea of meeting quarterly throughout the year has garnered support from all the botanists involved. The meetings' agenda and discussions are shared with the Region and the southern botanists via minutes which are distributed via DG.

* Participate as a member and host of the Interagency Natural Areas Committee which meets regularly to discuss issues related to biodiversity in the Northcoast. The primary goal of this bioregional committee, established under the Department of Fish and Game's Natural Heritage Division, is to provide a forum for improving communication, coordination and collaboration on a variety activities related to natural diversity. As an outcome of these meetings, a Memorandum of Understanding was facilitated between the Forest and the Humboldt State University Foundation to undergo research and monitoring of edible mushrooms which have been negatively impacted by collectors. In this case the technical expertise of Dr. Dave Largent of HSU was merged with the management needs of the Orleans Ranger District.

* Attended the two meetings dealing with issues related to natural area management: the Annual Natural Areas Association Meeting in Concord, CA and the Region's Annual Research Natural Areas Meeting in Sacramento.

EDUCATION

* Developed a brochure for a self-guided natural trail located in the Myrtle Creek Botanical Area. The guide blends the natural and mining history of the area and defines the relationships between human activities and the landscape. The brochure includes botanical illustrations of the species found there including the rare Darlingtonia californica. The brochure is distributed to the public at the Supervisor's Office, the Smith River National Recreation Area, and Redwood National Park.

* Wrote an article for an internal newsletter entitled "Sounds of Six Rivers" about fencing the rare Cypripedium montanum which was being damaged by cattle. A senior volunteer assisted with this project.

* Wrote an article for the Interagency Natural Areas Committee's newsletter describing the Sensitive Plant Programs' role in protecting biodiversity (establishment of Botanical Areas, cooperative agreements) and identifying biodiversity concerns of the Forest.

EXTERNAL RELATIONS

* Initiated a landowner contact agreement with Lynn Lozier of The Nature Conservancy in order to ensure protection of Bensoniella oregana on private property which is adjacent to the Forest property supporting this sensitive species. Information from the Sensitive Plant program regarding the species

was submitted to TNC. A meeting was established between the Forest, TNC and the landowner, at which time, the landowner voluntarily agreed to protect the site and to allow for monitoring. Information about this occurrence and its importance to the overall protection of Bensoniella in California will be incorporated into the Species Management Guide (see above).

* Coordinated a research project between Dr. Dave Largent of Humboldt State University, Department of Biology and the Orleans Ranger District to investigate the life history of specific edible mushrooms which are being negatively impacted by unsound collecting methods and potential over-harvesting.

* Assisted Dr. Linda Vorobik of the Jepson Herbarium, who is currently under contract with Six Rivers, in collecting fruits of the federally endangered Arabis macdonaldiana. Dr. Vrobik is working on the taxonomic treatment of this species.

* Designed a display for the County Garden Clubs' Daffodil Show addressing the role of the Sensitive Plant Program in plant conservation.

* Provided the Humboldt County Botanical Society with mounted photographs of sensitive plants and plant habitat for use in an educational display for the Humboldt County Fair.

* Met with representatives of the Sierra Club and CNPS to discuss concerns about a proposed Off-Highway Vehicle (OHV) Plan which would allow for OHVs in the North Fork of the Smith Botanical Area--an area which supports numerous sensitive and rare plants (including the federally listed MacDonald's rock-cress), and Port-orford cedar along creeksr which are still uncontaminated by the lethal root disease.

* Represented the Forest at a Native American Uses of Plants conference held in Santa Rosa. The conference dealt with the concerns of Native Americans with regards to access to native plants for basketmaking, policy regarding collection and the loss of quality/abundance of native plant materials due to Forest management practices.

DISTRICT AND SUPERVISOR'S OFFICE SUPPORT AND RELATIONS

* Supported the LMP staff by writing Affected Environment and Monitoring sections of the plan dealing with Sensitive Plants and Special Interest Areas, reviewed and edited sections of the draft and provided support material for other departments.

* Participated as an ID team member on 4 EISs and wrote the supporting material for the documents in accordance with the NEPA process including issue statements, mitigations and affected environment. Worked with ID team members in alternative development for 3 EISs.

* Supported District personnel working on Wild and Scenic River Planning by providing vegetation and sensitive plant descriptions for input into the document.

* Assembled mounted photographs and wrote text for display on the Mad River Ranger District to commemorate the completion of the CNPS Challenge Cost-Share Project (see above).

* Assembled photographs of the Botanical Area and the Sensitive plants therein, and wrote text for a multi-resource display exhibited on the Gasquet Ranger District in commemoration of the establishment of the Smith River National Recreation Area. The display was exhibited during a dedication ceremony attended by the public, agency heads and political officials.

* Began work on a sensitive plant guide to be used as a training tool on the District for non-botanical personnel.

STANISLAUS NF **********

The Sensitive Plant program on the Stanislaus National Forest continued to grow in Fiscal Year 1991. More funds were allocated to surveying for Sensitive Plants and there was a great increase in the amount of ground covered. The awareness and appreciation of Sensitive Plants by other departments also increased through education and sharing of the responsibility for the resource.

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

The Stanislaus NF increased by great measure, the number of people doing Sensitive Plant surveys on its four Ranger Districts. Employees were hired specifically to do Sensitive Plant work on all Ranger Districts. In several cases, surveys were accomplished with a bit of creativity in manipulating schedules and personnel. Personnel were borrowed from timber, wildlife and range shops to meet deadlines. Some of the wildlife folks did owl calling by night and plant surveys by day.

The Calaveras Ranger District hired Terri King and Shanda McGrew, Biological Technicians; and Ivy Morrow and Sharon Tallent, both Forestry Aides. Terri wrote pre-field reviews, supervised the other three employees and coordinated surveys. Shanda, Ivy and Sharon conducted surveys in insect salvage projects, range allotments and Federal land proposed for exchange.

The Groveland Ranger District hired Jennie Haas as the District Botanist, a permanent full-time position. Her responsibilities include planning, coordinating and supervising the Sensitive Plant surveys of the botany crews; writing Biological Evaluations for district projects; and writing Sensitive Plant input for Environmental Assessments. The Groveland Ranger District hired Barbara Castro and Eric Nielsen in October, 1990 to conduct screening surveys for Sensitive Plants in the Arch-Rock Burn. For the 1991 field season, the district hired Brian Cleary, Mike Holmes, Paul Rainey, (temporary NTE 1 year Professional Botanists) and John Bartz, Glenn Cross, Sharon Frey, Julie Jensen, Wanda Moriarty, Ron Nelson, Sandy Pattison and Mike Van Orden (temporary Biological Technicians). These folks conducted Sensitive Plant surveys for timber, recreation, soils and silviculture projects. They also conducted a floristic inventory on land newly acquired from private holdings which contains limestone outcrops and six different plant communities on 1000 acres.

The Mi-Wok and Summit Ranger Districts hired Biological Technician Peg Carkeet to do early season Sensitive Plant surveys. She also put together Sensitive Plant photo and information albums for each district and developed a pocket field guide of Forest Sensitive Plants. Biological Technician Elizabeth Cockrill was hired and did Sensitive Plant surveys for both Mi-wok and Summit Ranger Districts after Peg Carkeet left in June. Donna Peidrafita, a Biological Technician in Wildlife assisted Elizabeth in doing some surveys for Silene invisa in the Emigrant Wilderness. Members of the Mi-Wok District Wildlife Crew assisted with Sensitive Plant surveys in insect salvage surveys.

2. **Did the Forest use volunteers to do plant work in FY 91?**

The Groveland Ranger District had one volunteer, Ian Shackelford, a Sophmore at Humbolt State University who is majoring in Botany. His primary

goal was to learn as much as he could about plants and some of the work in the field of botany. Ian worked with the rest of the botany crews doing Sensitive Plant surveys and was a great help in doing the floristic inventory of the Bower Cave/Jordan Creek Special Interest Area.

3. Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for Sensitive Plants in FY 91:

Sensitive Plant surveys were done in support of most of the projects on the Districts. The greatest number of projects were insect salvage, followed by fire salvage, planting units, soil tillage units, range allotments, land exchange and recreation projects. The number of projects surveyed in FY 91 more than doubled that of FY 90. The acreage surveyed also more than doubled from FY 90.

Ranger District	# of Projects	Acreage	Miles of Road/Trail
Calaveras R.D.	11	9,015	
Groveland R.D.	57	32,000	32 miles of road
Miwok R.D.	18	5,000	
Summit R.D.	3	3,000	10 miles of trail
Forest Total	**89**	**49,015**	

4. Did the Forest develop an interim or complete a species management guide?

Due to the incredible workload caused by fire and insect salvage projects, no work was done to develop an interim management guide planned for FY 91.

5. Did the Forest complete a cost-share project in FY 91? (provide specifics--who was the partner etc.)

No cost-share Sensitive Plant projects were undertaken in FY 91.

6. $$ spent on TES plant program during FY 91 by the following funding sources:

Appropriated funds (all Forest Service sources and cost-share)	$ 52,000
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutsen-Vandenberg funds	$ -0-
Timber Salvage funds	$ 84,000
Total Forest Plant Program	**$ 136,000**

7. Name of Sensitive Plant(s) and number of new occurances discovered in FY 91.

Sensitive Plant	New Occurrences	District
Allium tribracteatum	4	Calaveras
Clarkia australis	113	Groveland
Eriophyllum congdonii	13	Groveland
Erythronium tuolumnense	2	Miwok
Lomatium stebbinsii	4	Miwok
Lomatium stebbinsii	1	Summit
Mimulus filicaulis	10	Groveland
Silene invisa	1*	Summit
Silene invisa	5	Calaveras
Total:	153	

*There were an additional 52 occurances of Silene invisa discovered in fruit, on the Summit Ranger District. These will be verified during the identification period in 1992.

8. Other Activities:

1. Terri King and Shanda McGrew designed a T-Shirt featuring Sensitive Plant Allium tribracteatum for the Calaveras Ranger District.

2. Calaveras District botany crew and Elizabeth Cockrill from the Mi-Wok Ranger District organized a multi-disciplinary field trip to view Silene invisa and its habitat on the Calaveras Ranger District. Participants included members of the Summit District Timber crew, members of the MiWok District Wildlife crew, and the S.O. range crew.

3. Jennie Haas conducted a field trip for botany employees and BLM Botanist Al Franklin to view Groveland Sensitive Plants. She also held several training sessions for non-botany field personnel.

4. Jennie Haas did a slide presentation for a group of exchange students from Hong Kong, aged 15 through 21, on the subjects of Sensitive Plants and the local flora.

5. The Groveland Wildlife, Range and Botany department held a contest to design a department logo. The winning design, featuring Clarkia australis, a Spotted Owl and a range fence protecting riparian habitat was printed on T-Shirts.

6. Peg Carkeet, of the Mi-Wok District, designed, assembled and did the art work for a Forest Sensitive Plant pocket field guide. The field guides were distributed to each District. On the Groveland District, the field guides were reproduced and distributed to field-going personnel in other departments.

7. Peg Carkeet assembled three-ring albums of Sensitive Plant photos and information, plus information about rare plant conservation. The albums were displayed and viewed by the public at the open house celebration of the new Groveland Ranger District office building. It was well received and generated a lot of interest in the subject of rare plant conservation.

TAHOE NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 91?**

The Tahoe NF hired 3 seasonal botanists, two seasonal botanist/wildlife, one NTE, and provided a 2 week detail for botany work this year.

2. **Did the Forest use volunteers to do plant work in FY 91?**

Volunteers contributed to the completion of several different projects. The Truckee Chapter of CNPS contributed over 50 hours of work, and a local off-highway vehicle club contributed 5 hours of work to fence a population of sensitive plants from illegal off-highway motorcycle use. Seven other volunteers contributed their time to do sensitive plant surveys and plant photography.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 91**

PROJECT	ACRES SURVEYED	#BE's
salvage sales	27,500	17
green timber sales	9,000	4
special uses (includes road use)	325	5
recreation	35	2
silviculture treatments	33,500	5
Lewisia longipetala survey	150	0

4. **Did the Forest develop an interim or complete a species management guide?**

We continue to work on an interim management guide with the Plumas and Toiyabe for Ivesia aperta var. aperta, Ivesia aperta var. canina, and Ivesia sericoleuca. We started an interim management guide for Lewisia longipetala via a cost-share agreement.

5. **Did the Forest complete a challenge cost-share project in FY 91? (provide specifics - who was the partner, etc.)**

The Forest entered into two cost-shares - neither is complete. The first is a cost-share with the Truckee Chapter of the California Native Plant Society, the Eldorado NF, and the Lake Tahoe Basin Management Unit. The TNF, ENF, and LTBMU each contributed $1,000.00 to this project. CNPS matched that amount to help learn more about the distribution and habitat requirements of this plant. In addition, an interim management guide will be developed. This project is scheduled to be complete in FY 92.

The second project is a cost-share that the TNF entered into with the Plumas National Forest and Chico State University. Each of the national forests contributed $1,000.00 that is matched by the university to do isozyme work on Vaccinium coccinium to determine if it is a true species or a hybrid.

6. **$$ spent on TES plant program during FY 91 by the following funding sources.**

Appropriated funds (all Forest Service sources & cost-share)	$ 104,000
Contributed funds & cost-share from non-Forest Service sources	$ 750
Knutson-Vandenberg funds	$ -0-
Total Forest Plant Program	$ 104,750

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 91**

Lewisia cantelowii -	5
Lewisia longipetala	2
Silene invisa -	343
Phacelia stebbinsii -	1
Ivesia sericoleuca	8
Ivesia aperta var. aperta	2

Watch list species/communities:

Taxus brevifolia -	numerous
Torreya californica	1
Pinus washoensis	1
Drosera rotundifolia -	3
Darlingtonia californica	1
Trifolium lemmonii -	1
Viola tomentosa	1
vernal pool -	1
Fens -	3

8. **Other activities**

The TNF created a watch list for certain species of plants and plant communities that may become increasingly rare. The forest plan will be amended to incoorporate an addition to the diversity standard and guideline that includes direction to conserve these plants and plant communities.

One of the watch-list plants, Pacific Yew, is being inventoried in a different sort of way. The forest silviculturalist and botanist developed a poster that encourages Forest Service employees and members of the public to report locations of this plant. This survey has provided useful information about the distribution of the plant on the TNF.

Over 100 people from districts were trained in sensitive plant and watch list species identification and the workings of the sensitive plant program.

The following populations of sensitive plants were monitored for vigor, reproduction, and threats: 17 occurrances of Silene invisa; the TNF now has 4+ years of data from many of these plots, and is close to being able to complete a species management guide (the interim guide was developed in 1988). Two populations of Lewisia longipetala (much of the information being collected is part of a graduate thesis project); 3 occurrences of Ivesia sericoleuca, 7 occurrences of Eriogonum umbellatum var. torreyanum (a graduate student was recruited to do work on this plant), 3 occurrences of Lewisia cantelowii, 1 occurrence of Vaccinium coccinium, and 2 populations of Ivesia aperta var. aperta.

Plant personnel were also active in many other areas of forest management; some examples follow. A major forestwide project was conducted on forest rivers and streams for wild and scenic river eligibility. This involved several months of work by the forest botanist on determination of potential habitats and outstanding or remarkable botanical and/or ecological features.

Plant personnel were also involved extensively in the proposed settlement of the forest plan appeal by the California Native Plant Society.

New perspectives projects were developed on several districts on the Tahoe National Forest. This involved extensive participation by plant personnel to help explain and interpret plant communities.

The southern most, and largest population of Ivesia sericoleuca was fenced using volunteers from the local California Native Plant Society and a local off-highway vehicle group. This population was being damaged by illegal motorcycle use. About one acre was fenced using hog and smooth wire. This area is also a vernal pool, so that plant community was protected too.

Plant personnel were actively involved in helping to write the wilderness plan for Granite Chief Wilderness. The effects of prescribed burning on various plant communities was an important area of feed back.